User's Manual

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1. Software System Overview

PowerDB Acceptance & Maintenance Test Data Management Software (PowerDB) allows you to record and maintain field test results. PowerDB stores information in a database. Subsets of the database (Jobs) may be made for field-testing. Results, changes, and additions to data collected in the field may be merged with a common central office (Master) database. Entering and recording of field information is aided by importing from standard third party software, or by automated acquisition and control of popular field test instruments. PowerDB allows reports to be easily generated to document and analyze historical test information. PowerDB consists of over 200 test forms and reports. Existing forms can be modified or new test forms can be designed to your specifications. When testing assets these forms are used to facilitate data entry, on-screen data presentation, and report printing.

1.1. Installation

If you have been provided with a hardware key, do not have the key plugged in during the installation process. For all operating systems make certain that you have logged in as an administrative level user to run the PowerDB installation.

If installing from a disc place the PowerDB disc in your CD-ROM drive. The installation should begin automatically. Follow the on screen instructions to complete the installation. If the installation does not begin automatically then choose 'Start' and 'Run' from the Taskbar. Type `d:\setup` and press the OK button. If your CD-ROM is not drive d, then enter the appropriate letter.

If installing from a download, select 'Save' when prompted to save or open the file. When the download is complete install PowerDB by double-clicking the downloaded file. Follow the on screen instructions to complete the installation.

After installation an icon named 'PowerDB' should be installed on your desktop and in your Start menu.

1.2. License

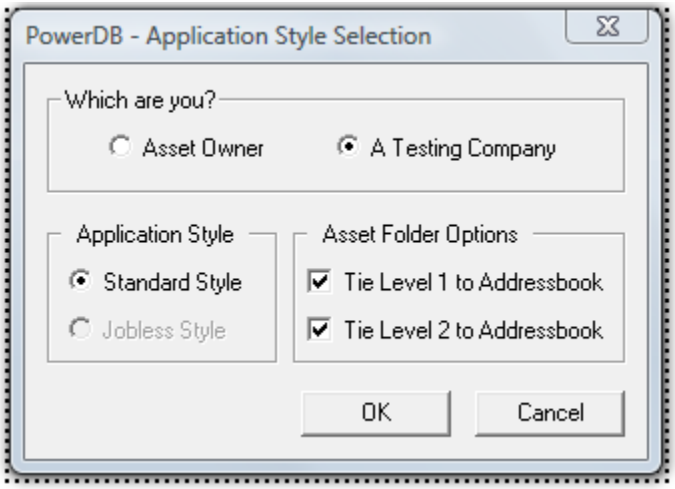
PowerDB will run in 'reader mode' without a valid license and you will not be able to affect changes to the database. If you have a hardware key, plug it into a USB port prior to starting the software. Run PowerDB by double-clicking the desktop icon or selecting 'Start' and clicking the PowerDB icon. If a hardware key is not present you will be prompted to license PowerDB to your machine. A step-by-step tutorial on registering a softkey license may be viewed under the Help Menu. To complete the softkey registration, go to the Tools menu and select PowerDB Licensing. Enter a serial number that was provided to you, and then fill in your contact information. *Via Internet* If your machine is connected to the Internet, then select 'License Online' and press the 'GO' button. You will receive a message to indicate licensing success or failure. If you are unable to register by this method open a web browser and go to
www.powerdb.com/license
You will see a dialog similar to the one within the application. Follow the instructions provided on the screen.

1.3. Logon

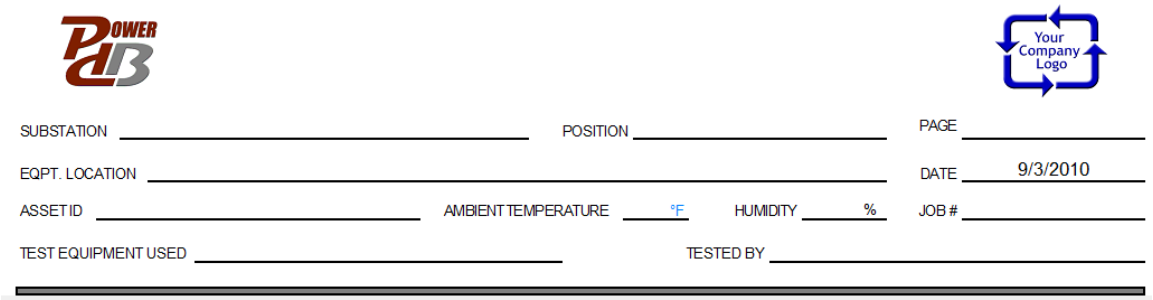
Type `administrator` in the username field of the logon screen and press the OK button.

1.4. Application Style

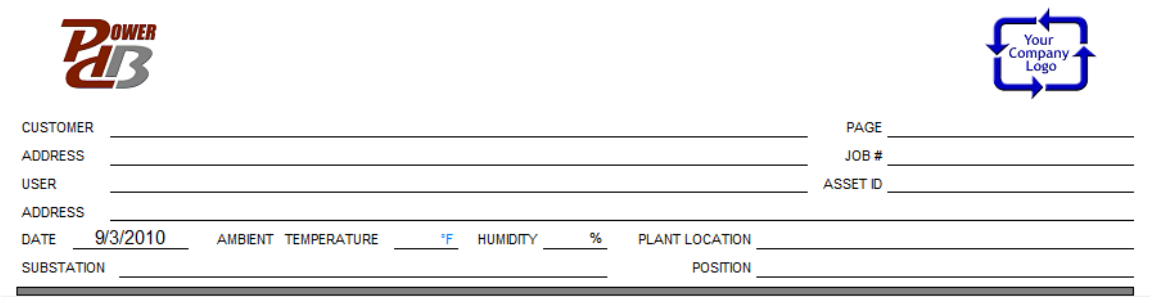
This screen will be displayed only once when you first install PowerDB and connect to a master database. The Application Style should be set only one time. Once data entry has begun it is strongly recommended that you not change the Application Style. Altering the style could cause features to behave differently and alter previously generated reports.



If you select that you are an Asset Owner the application will load the Header format displayed below, to be used on all test forms. This will cause the Level 1 and Level 2 Asset Folders to be unlinked to the address book. You will be able to use multiple Level 1 through Level 4 folders in each Job Tree.



If you select that you are a Testing Company the application will load the Header format displayed below for use on all test forms. If asset folders are tied to the address book only a single folder Level 1 or Level 2 will be available in the selected Job Tree.



Standard Style will group testing into Jobs. Jobless Style is a future feature that will remove the Job subsets from the database structure, allowing asset based testing. Current functionality of Jobless Style requires at least one job to be created, where all equipment is organized and test sheets and data are added to the database.

1.5. Initializing your System

It is suggested that you complete the following steps in the sequence listed. You may navigate between databases from the File > Change Database selection.

Designate a database to be the Master Database. You may use the default installation database or you may create a new Master Database from the File menu. It is suggested that you uncheck the Address Book selection if you are creating a new Master Database from the default installation database.

As instructed in Section 8.2 set Configuration Settings at Tools > Administration and Tools > Options.

As instructed in Section 8.1 set User Accounts.

If you are a multiple license entity create Field Databases from the Master Database for users who will be working on a local database outside of the Master Database.

1.6. Updates

Updating your application to the latest version of PowerDB will provide you with the latest features added to the software. To update your system files you may download the latest version of the software from our website at www.powerdb.com or contact our office to provide you with a CD.

When you install the latest version on your master database machine all LAN users need to be logged out of PowerDB. You will need to install the latest version on all LAN machines before proceeding with data entry and on all field machines before synchronizing again. **NOTE:** Do not forget to update any intermediary databases (i.e., databases on USB drives used for synchronization.)

Follow the instructions on the screen. You will be prompted to update databases used with previous versions of PowerDB. Respond *Yes* to this prompt. The software will prompt you to create a backup prior to update; we recommend you respond *Yes* to this prompt.

Updating to a newer version of PowerDB does not update your Forms and Sub-Forms library. To bring in changes or additions to forms and sub-forms it is necessary to export them from the installation database (latest_forms.mdb) or the PowerDB website, and import them into your master database. To do this, follow steps 1-10 below to update from the latest_forms.mdb or follow steps 9-10 to update from the website. These steps must be repeated for each file.

1. Select File, and then select Change Database. Make note of the currently active database location.
2. Browse to locate the directory where you have installed PowerDB (default C:\Program Files\PowerDB Inc\PowerDB).
3. Locate and select Latest_Forms.mdb , click OK.
4. The software will prompt you that PowerDB must restart, click OK.
5. PowerDB will restart in Latest_Forms.mdb. Logon to PowerDB with the User Name 'administrator'. You can view and print the new test forms to determine if you wish to import these to your existing database or view and print them from the .pdf file on the installation CD. For the new forms you wish to add to your forms library, select the form in the form tree and select File, then select Export, then Export. Create a file name and save the file with a .pxd file extension. Make note of the directory in which the file has been saved. You may repeat this step for each test form you wish to export.
6. Select File, and then select Change Database. Browse to the original database location noted in Step 1 above. This directory should be where your existing database is located. Click OK.
7. The software will prompt you that PowerDB must restart, click OK.
8. Logon to PowerDB.
9. In the form editor tree, select File > Import > Import Form PXD. Browse to the test form(s) saved in Step 5 or downloaded from the website and select the file. Select the Intelligent Import option and answer other prompts as required.
10. Next, select either Update Form to update an existing form or choose Add a new Device to add a new device form. Click Import.

2. Working with Jobs

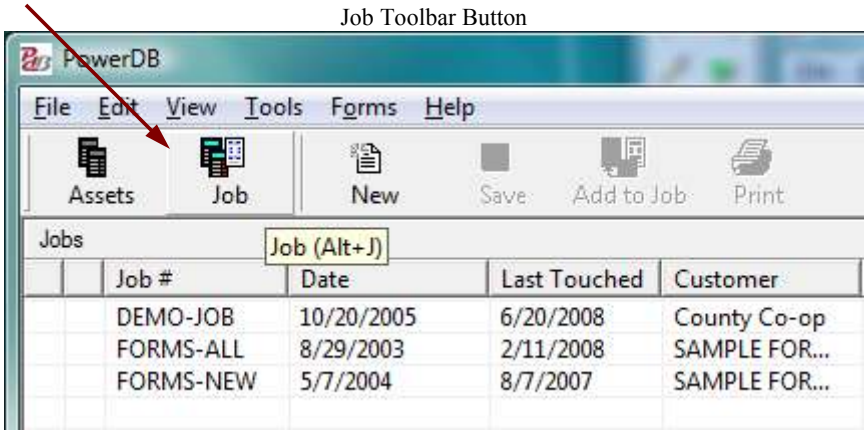
If your Application Style is set as a Testing Company refer to the information in Section 2.1. If your Application Style is set as the owner of the assets being tested (i.e., a utility or manufacturing facility) refer to Section 2.2. A Job is defined as a grouping of test results for one or more assets. To access the Job portion of PowerDB click the 'Job' button on the toolbar. Click this button again to toggle between the Selected Job Tree and the Job List. The Job List is a listing of all jobs in the database. The Job Properties dialog is used to enter reference information for a particular job. You can access the Job Properties by right-clicking on a job in the Job List and selecting Properties. Do not delete jobs from the Job List to 'make space' or 'clean up the job list' without careful review and evaluation.

2.1. Setting up a New Job - Testing Company

For a testing company, a Job might be defined by a contract, work order, purchase order, or recurring maintenance. Once assets and results are stored in the database they can easily be associated with repeated testing.

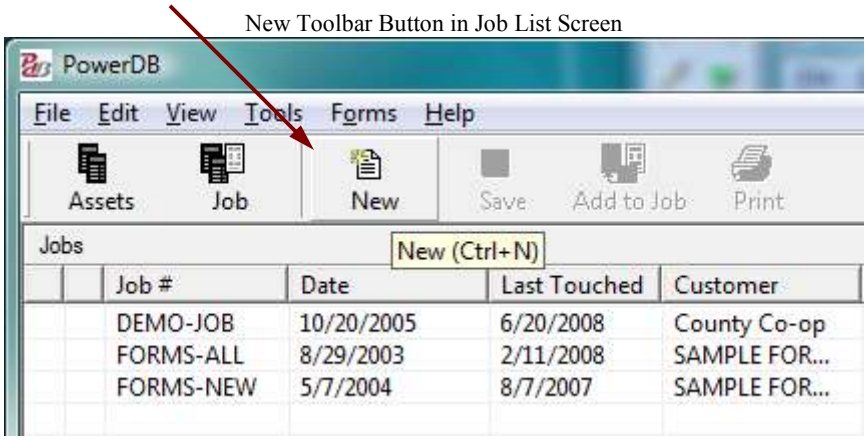
1) Click on the Job toolbar button to bring up the Job List [or from the View menu click on Job].

Job Toolbar Button



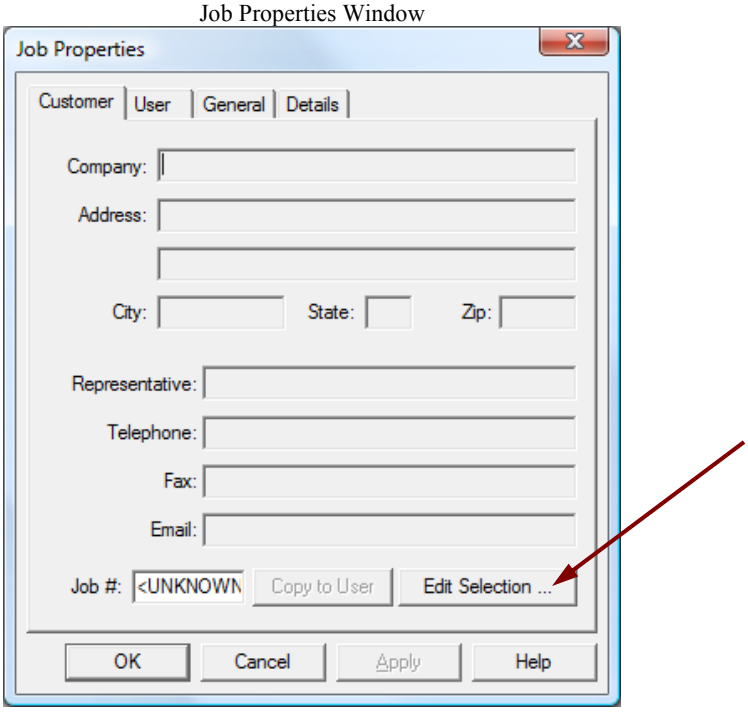
2) From the Job List, click on the New toolbar button.

New Toolbar Button in Job List Screen



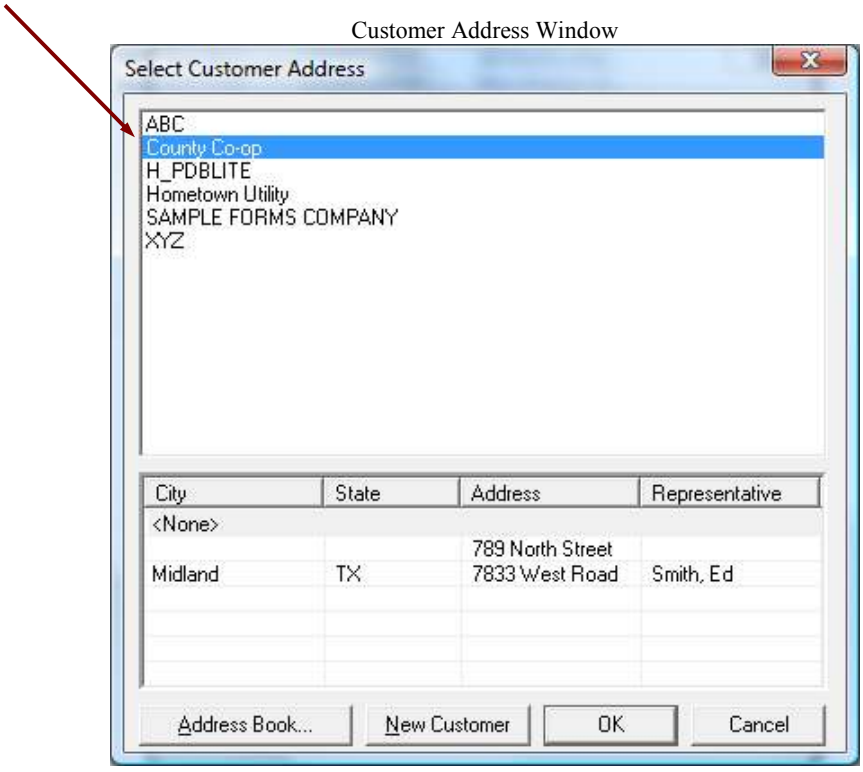
3) The Job Properties window will appear. Screen captures in this section reflect a database where Level 1 (named User) has been tied to the address book in the Application Style. [Note: you cannot enter text in gray fields, in this screen every field except Job #: is gray]. Click on Edit Selection.

Job Properties Window



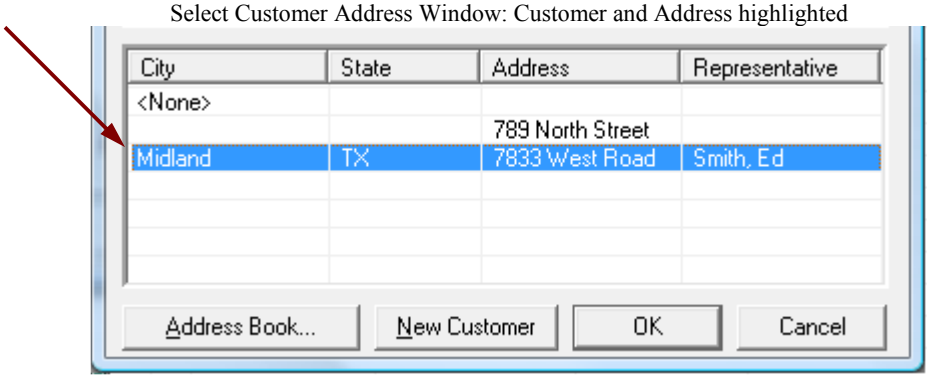
4) The Select Customer Address Window will appear. Look through the listed customers [who is paying for the work] to see if the one you need is listed, if so click on the customer's name. [If the customer is not listed skip to step 10].

Customer Address Window



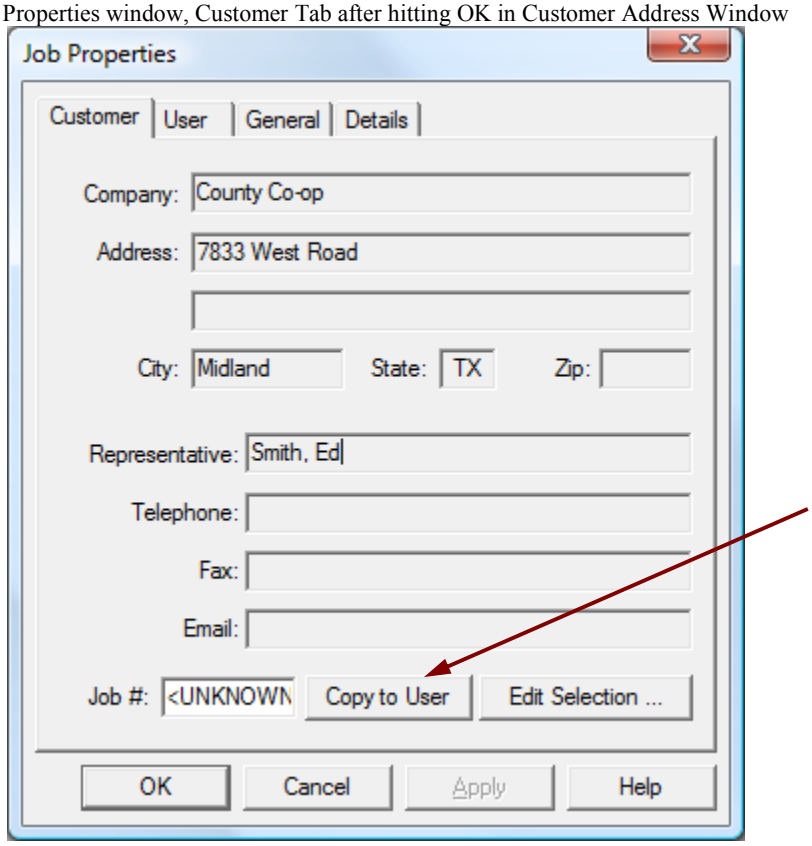
5) After highlighting the Customer Name that you want, select the appropriate address from the bottom half of the window [if the correct address is not listed skip to Step 17], then click OK.

Select Customer Address Window: Customer and Address highlighted



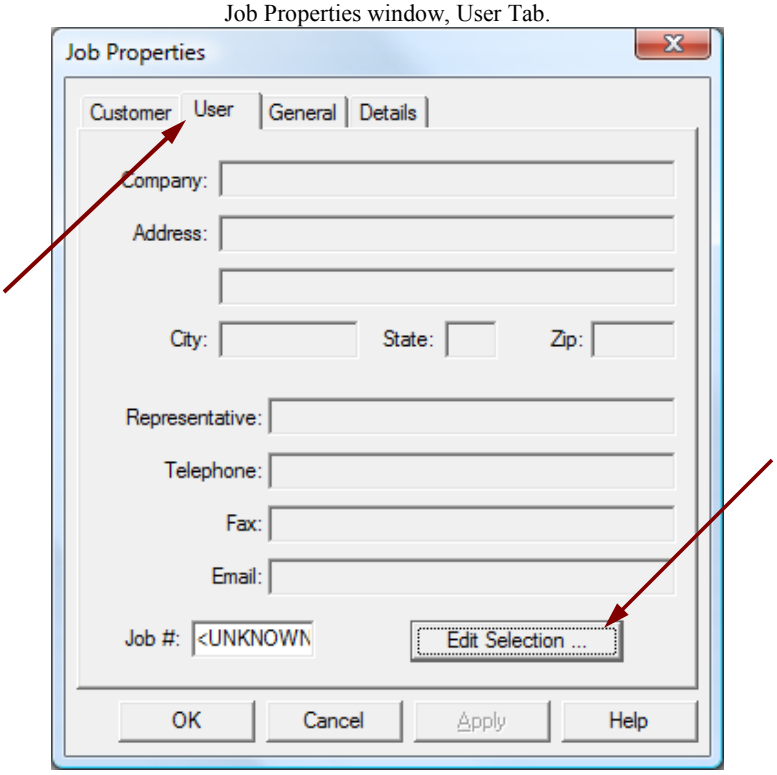
6) After hitting OK, the Job Properties window reappears with the Customer fields filled in. If the User [who owns/uses the asset being tested] is the same as the Customer, click on the Copy to User button and skip to Step 9. If not click on the User tab.

Job Properties window, Customer Tab after hitting OK in Customer Address Window



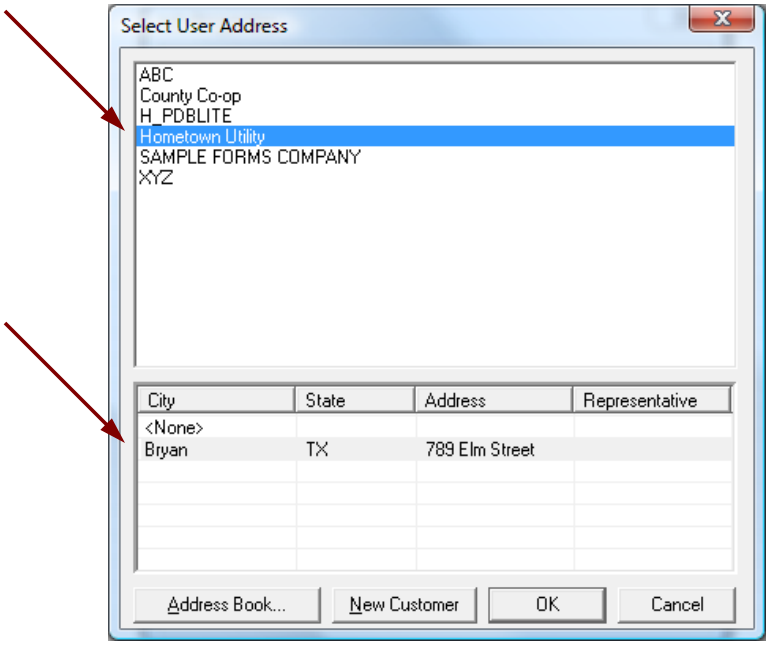
7) From the User tab, click on Edit Selection, the Select User Address window will appear.

Job Properties window, User Tab.



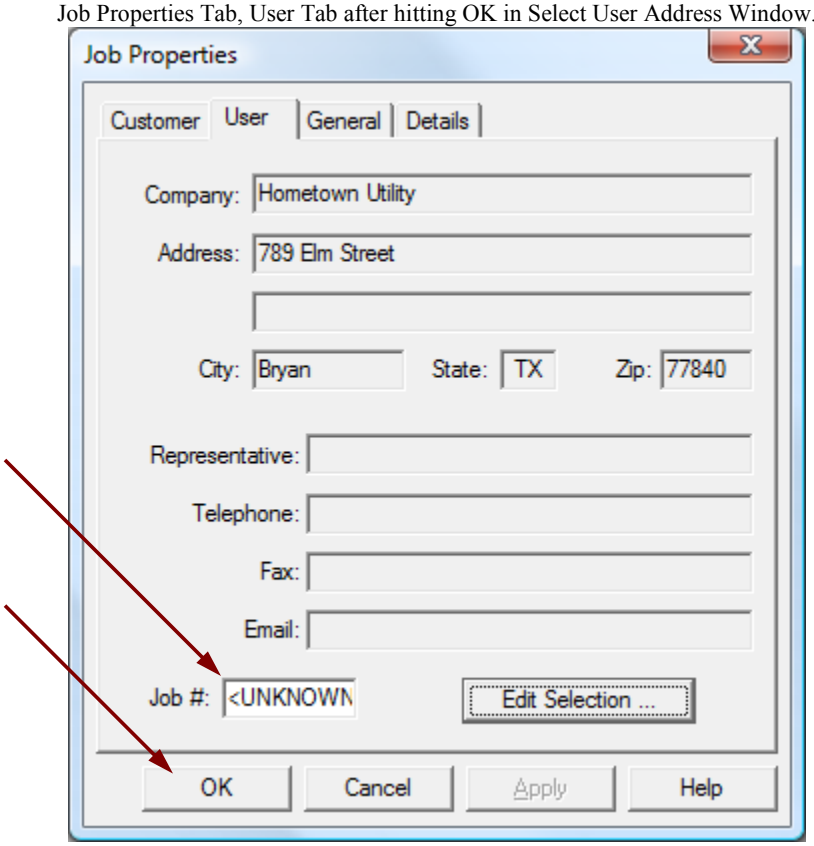
8) From the Select User Address window, scroll down to find the appropriate User and address and click OK. If the User is not listed, skip to Step 10 [same procedure, but return to step 8 instead of Step 4 when finished]. If the User is listed, but the address is incorrect skip to step 17.

Select User Address



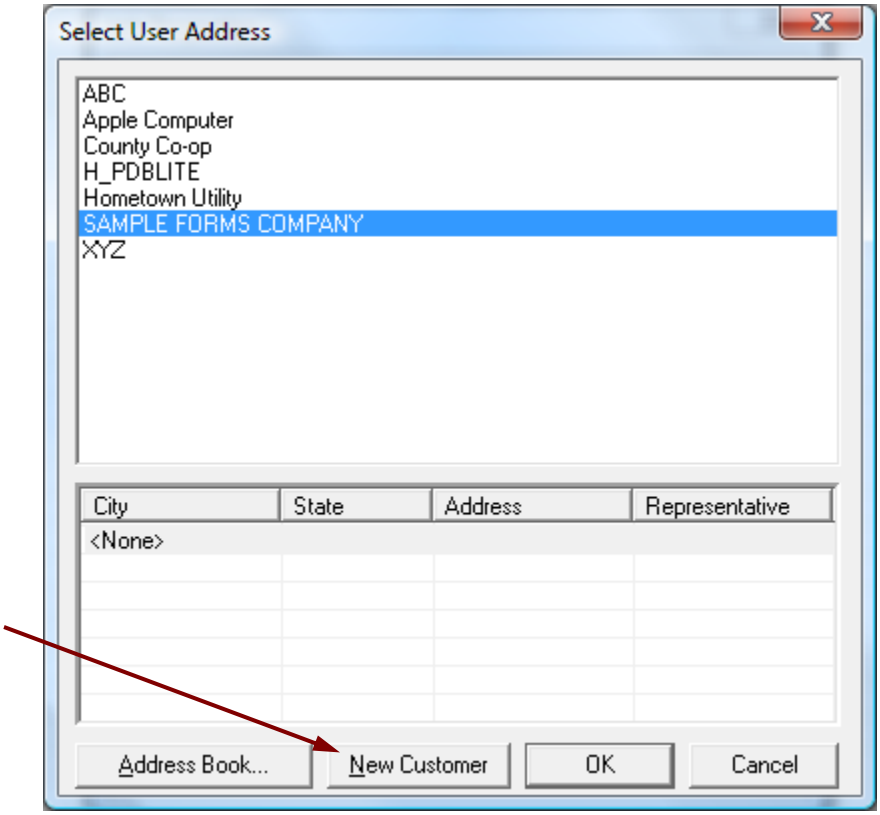
9) The Job Properties window reappears with the User tab filled in. Select the Job #: field and enter the Job number. Click OK and the Job will be created. You do not need to follow any more steps.

Job Properties Tab, User Tab after hitting OK in Select User Address Window.



10) If the Customer name is not already listed in the Select User Address window, click on the New Customer button.

Select User Address

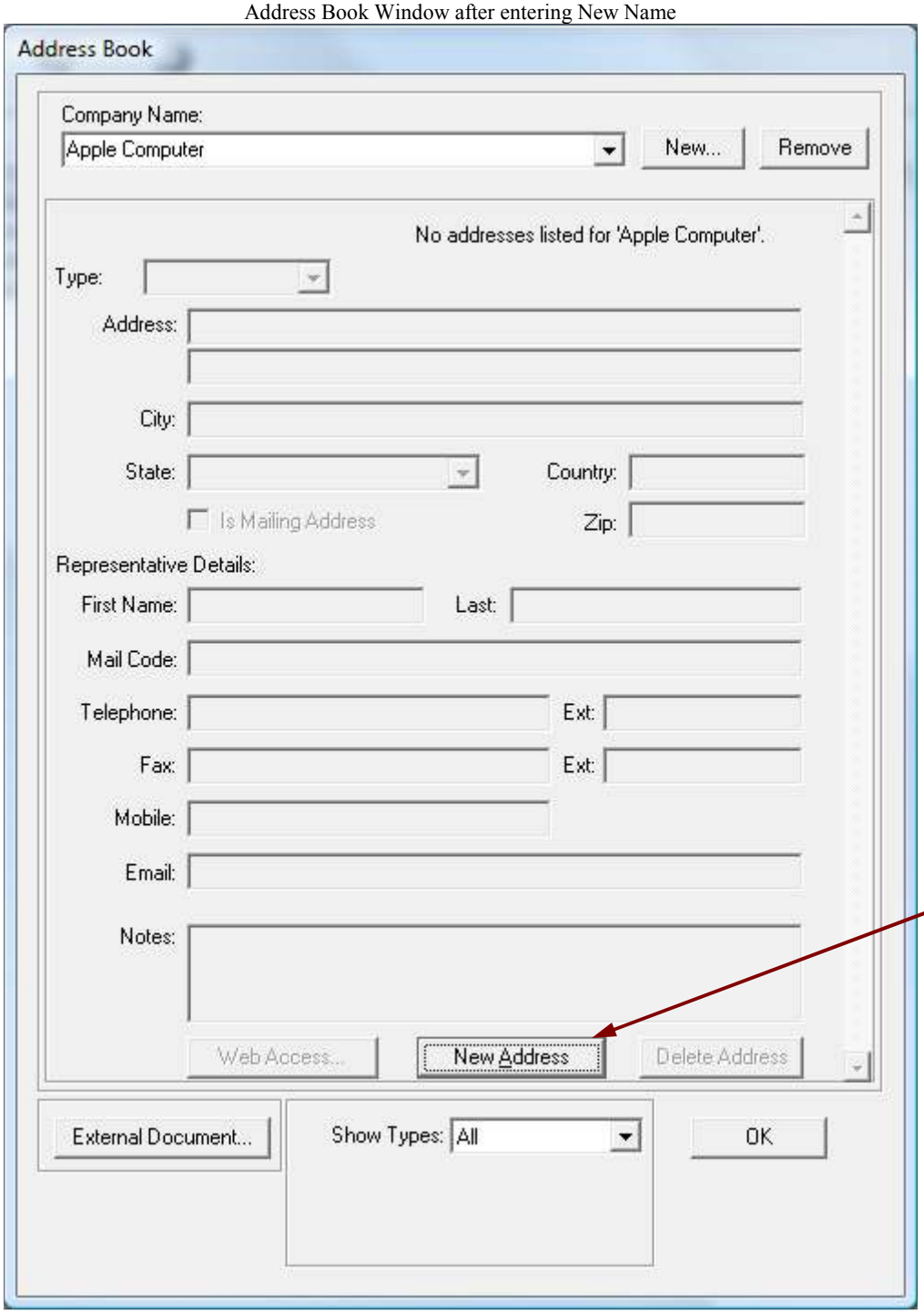


11) The Address Book –New Name Window appears, enter the name of the new entity and click OK.

Address Book – New Name Window

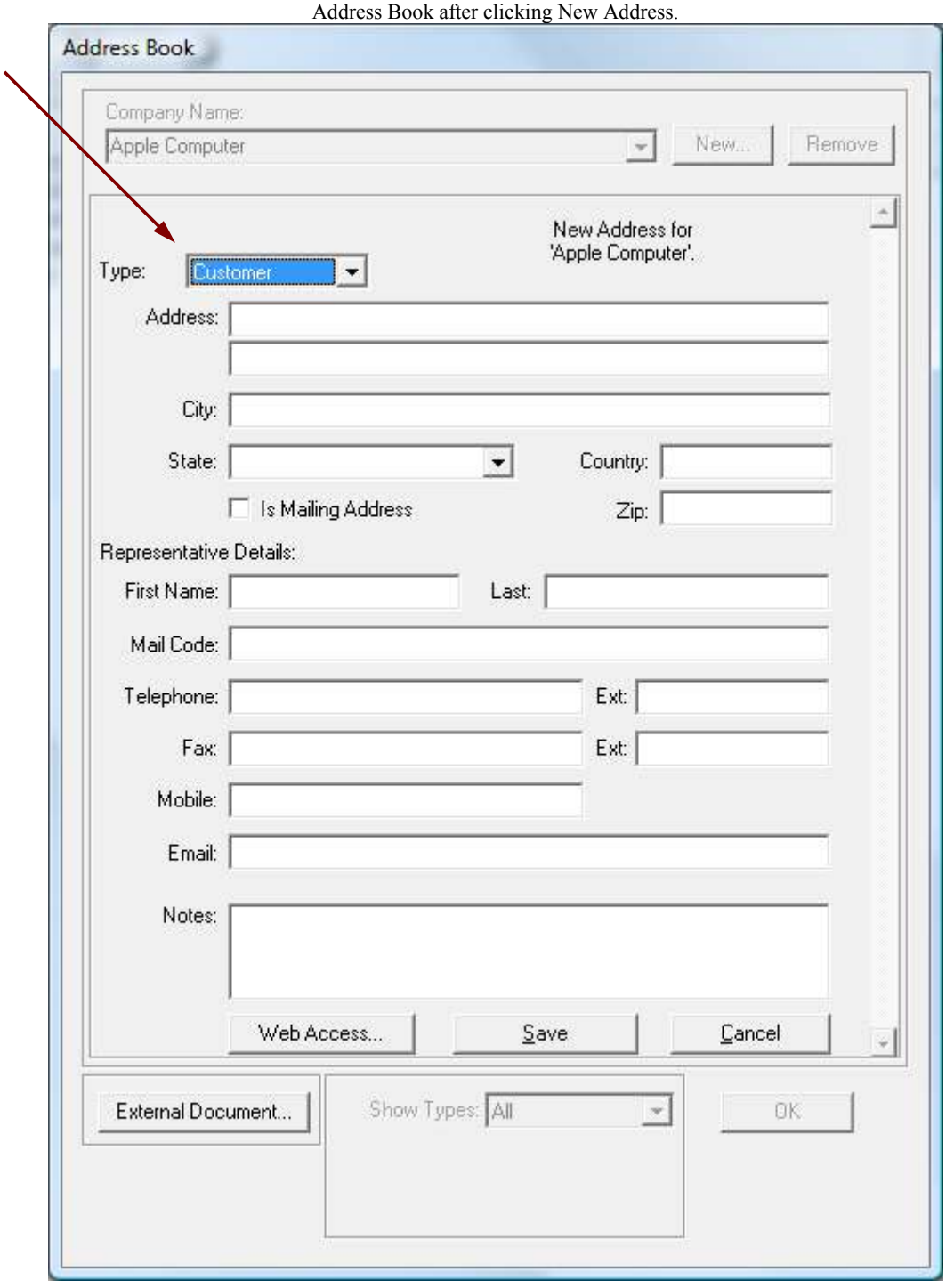
12) The Address Book window reappears with the newly created company name filled in [note all of the other fields are still grayed out]. Click on the New Address button.

Address Book Window after entering New Name



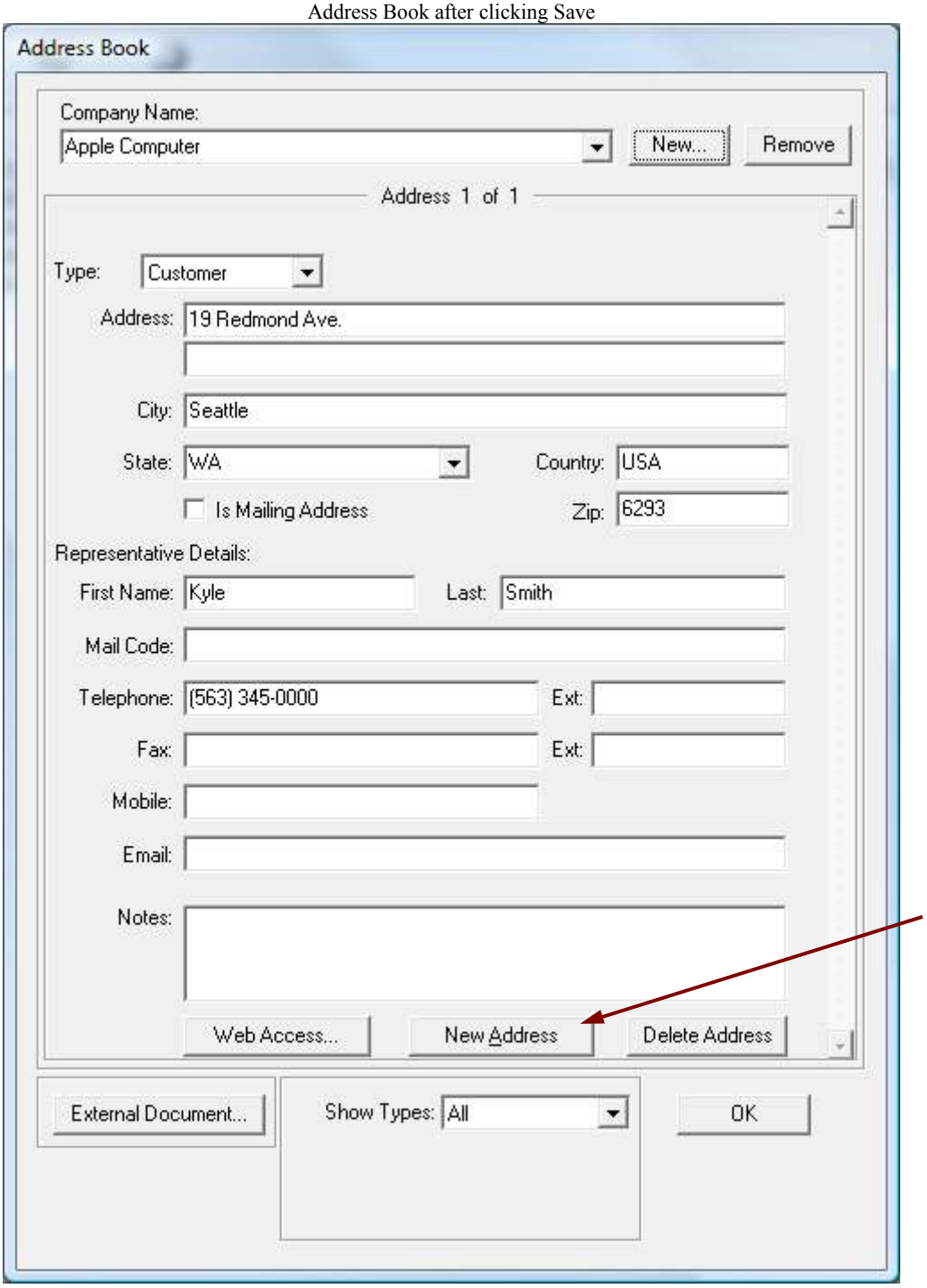
13) After clicking on the New Address button the fields are no longer grayed out. Make sure the Type dropdown list is set to Customer, User or Plant as appropriate. Enter the information and click the Save button.

Address Book after clicking New Address.



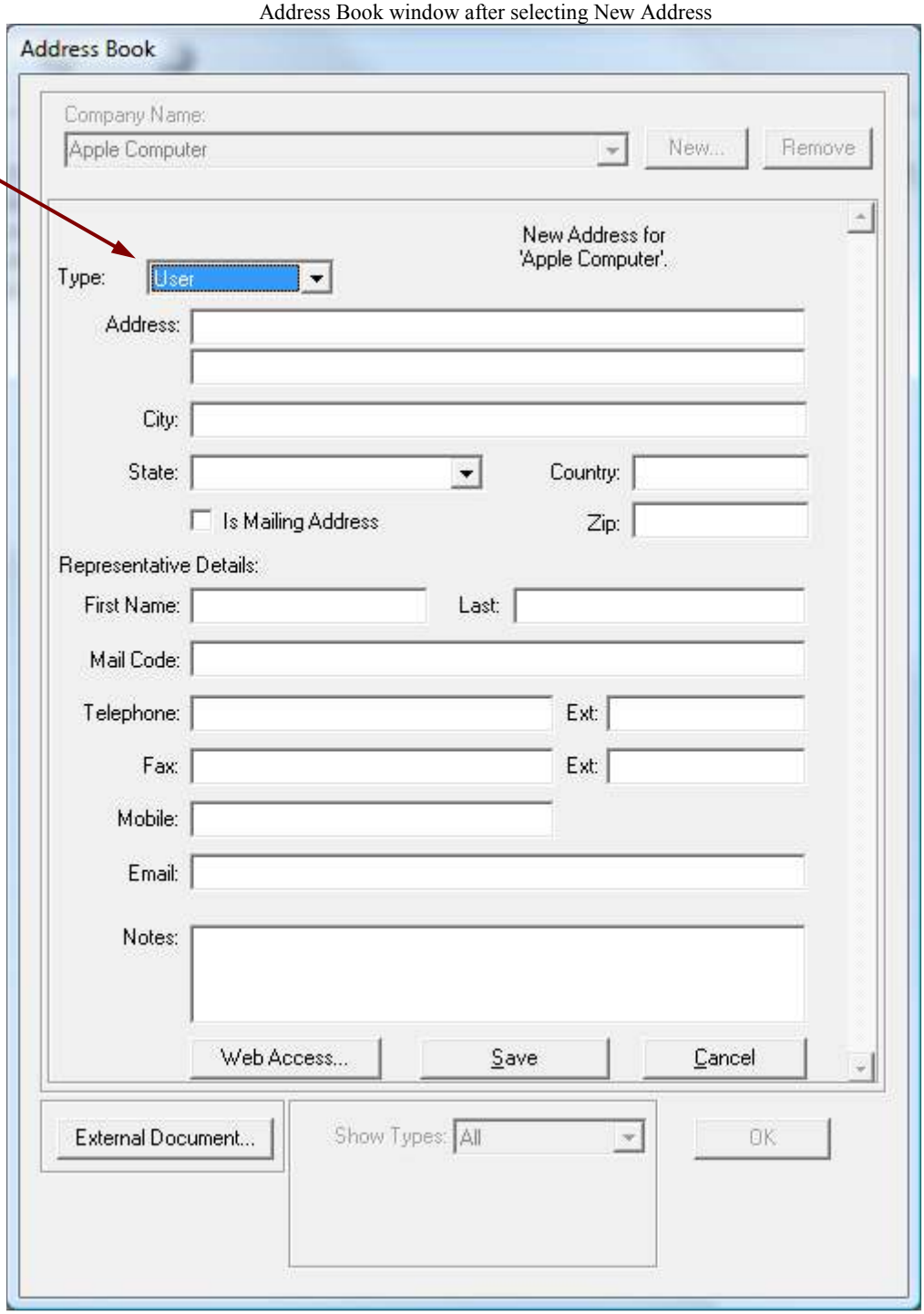
14) After clicking Save, the address will be displayed. If the User address is the same as the Customer address click OK and go back to Step 4, the customer you just entered will be available for selection. If not click on New Address.

Address Book after clicking Save



15) The following window will appear. Make sure the Type dropdown list is set to User. Enter the User information and then click on the Save button.

Address Book window after selecting New Address



16) After saving the information, the Address Book Window will list the information you just put in as Address 2 of 2.

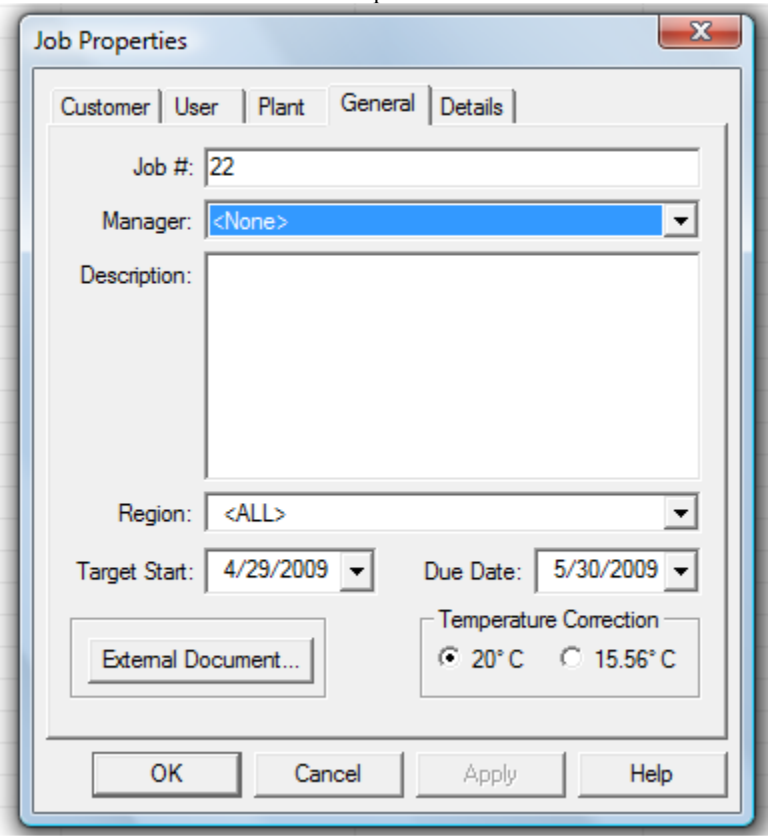
    If your database is set up to also tie Level 2 (named Plant) to the address book you can repeat the preceding step to add a Plant address making sure the Type dropdown is set to Plant. After saving the information the Address Book will list the information as Address 3 of 3.

    Click on OK and return to step 4.

17) If the correct address is not listed from either the Select Customer Address or Select User or Plant Address windows, click on the Address Book button and then the New Address button to add new address information to existing Customers and Users. To add a new address follow the steps 12-14 for adding a new customer address or steps 15 and 16 for adding a new user address.

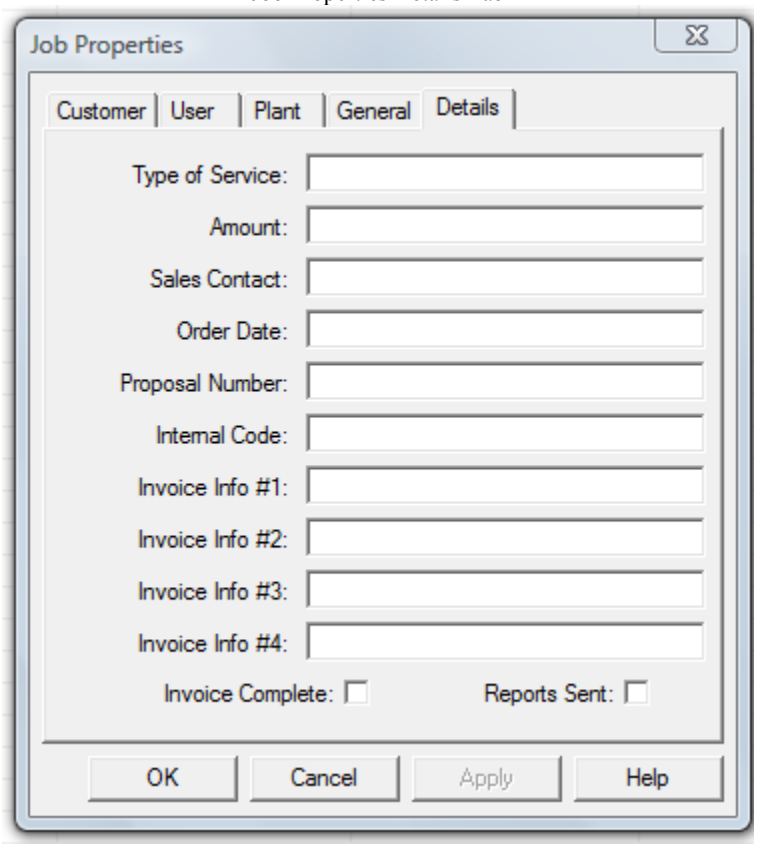
Note: You may access the Address Book from the View menu.

Job Properties General Tab



In the General Tab you can edit the Job Number, designate the Job Manager (optional), enter internal descriptive notes, designate a region, default the temperature corrections and associate an external document.

Job Properties Details Tab



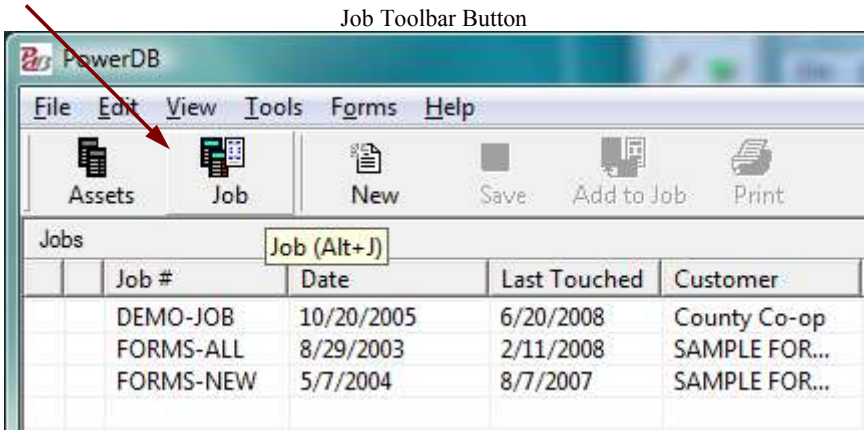
In the Details Tab (optional) you can track information that will display in your Job List. The field names can be edited at Tools > Administration > Database Options > Job Column Names.

2.2. Setting up a New Job – Asset Owner

A Job for an Asset Owner might be defined by a location, facility or feeder. For reporting purposes only active results associated with the Job will be printed.

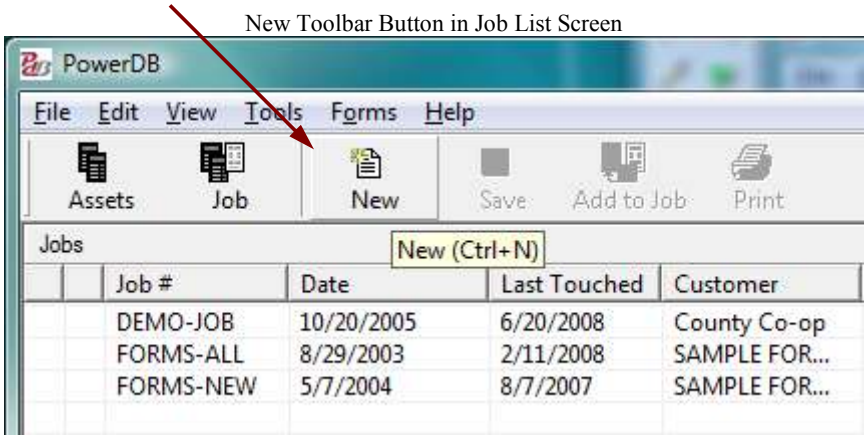
1) Click on the Job toolbar button to bring up the Job List [or from the View menu click on Job].

Job Toolbar Button



2) From the Job List, click on the New toolbar button.

New Toolbar Button in Job List Screen

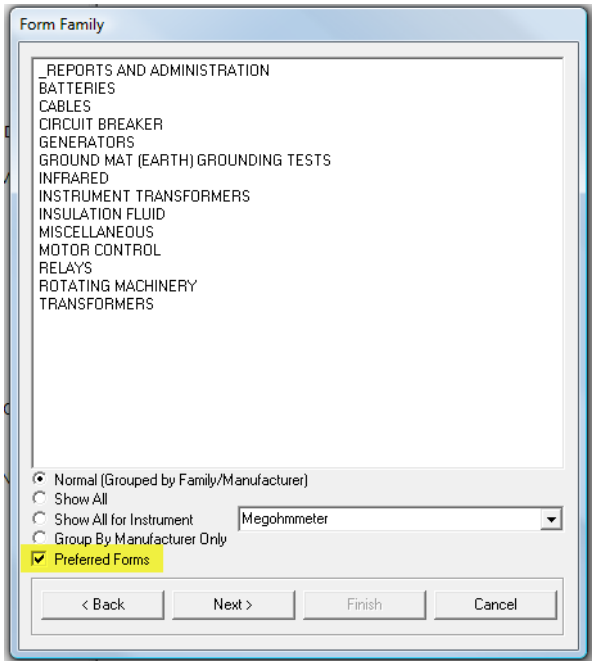


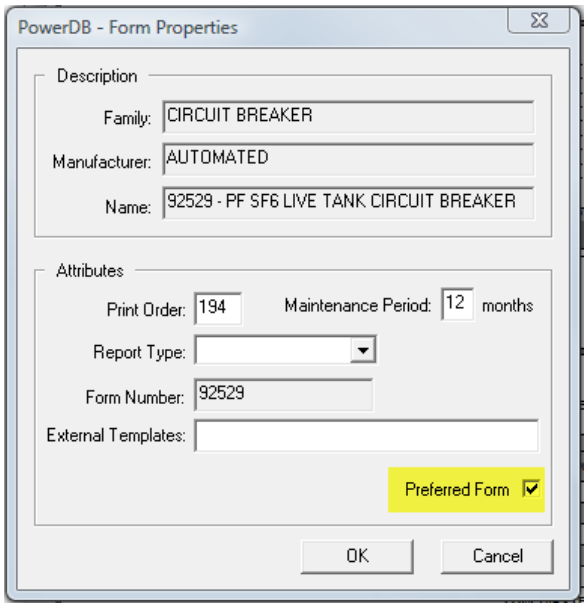
3) You may define contact information for a Job under the Contact tab of Job Properties by clicking the Edit Selection button and storing information in the address book. You may indicate a Job Number in the Contact or General tabs of Job Properties. Refer to Section 3 to add test forms to your Job.

3. Add Assets to a Job

This section will provide instructions for adding assets to jobs. Clicking the 'Add to Job' button (or *Ctrl+J*) will start a wizard to add assets and test forms to the Job Tree. At the end of the wizard, select 'Finish.' The new folder descriptions and assets will be shown in the Job Tree. To streamline the Add to Job procedure, no mouse clicking is required; all navigation can be done quickly using only the up and down arrows and the enter key on the keyboard. The last step of the wizard allows you to select and add multiple test forms at once. To select multiple tests by using a mouse, hold down the Control key while clicking the desired tests from the list. To select multiple tests by using the keyboard, hold down the Control key while using the up and down arrows to navigate the list and the spacebar to select tests from the list.

You may affect changes to the default maintenance period for a form in the right-click menu Properties item in either a master or development database. Similarly you may also indicate a form to be a 'Preferred Form'. Flagging a form as 'Preferred' will streamline your selection options in the Add To Job Wizard.



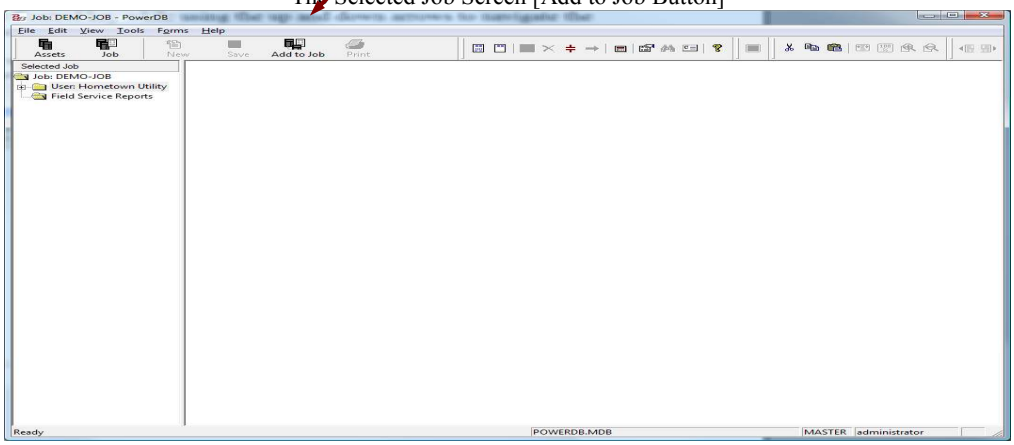


The PowerDB Asset and Job Trees contain up to four folder levels. The Asset Folder names below can be modified at Tools > Administration > Asset Folders tab. Screen shots in this section reflect a database with the default folder names.

Default Folder Name	Folder Level
User	Level 1
Plant	Level 2
Substation	Level 3
Position	Level 4

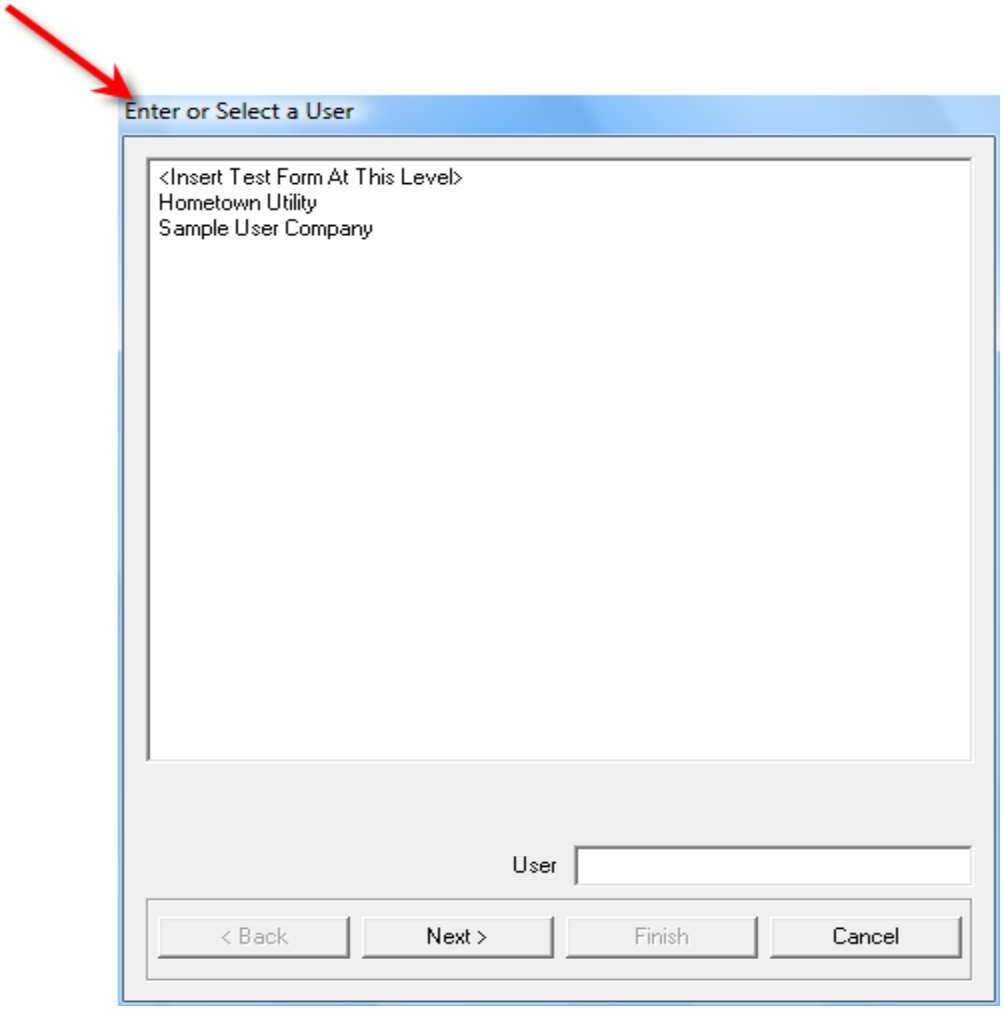
1) First, from the Job List double click on the Job you would like to open. You will now be in the Selected Job Screen. Click on the Add to Job toolbar button.

The Selected Job Screen [Add to Job Button]

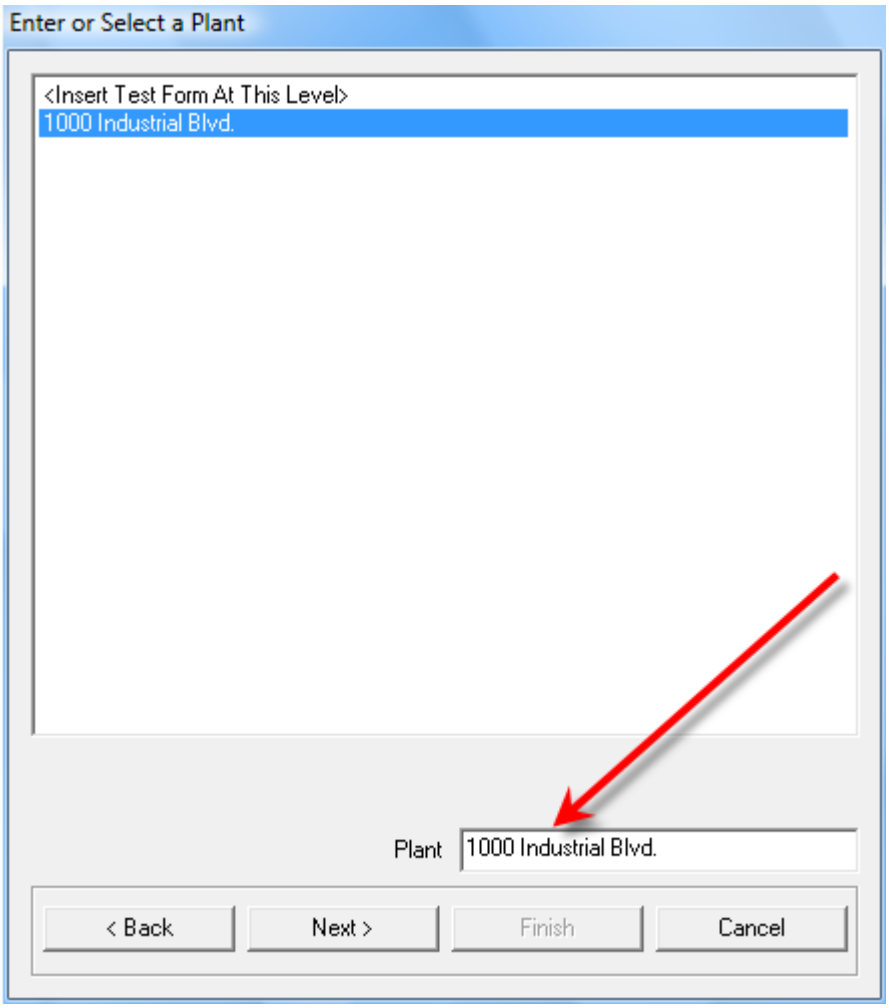


2) The Enter or Select a User window will appear. You may select a User name in the upper portion of the screen. If you select <Insert Test Form At This Level> assets will be added at Level 1. If you enter a User name in the edit box the Level 1 folder will be named as entered.

The Enter or Select a User window



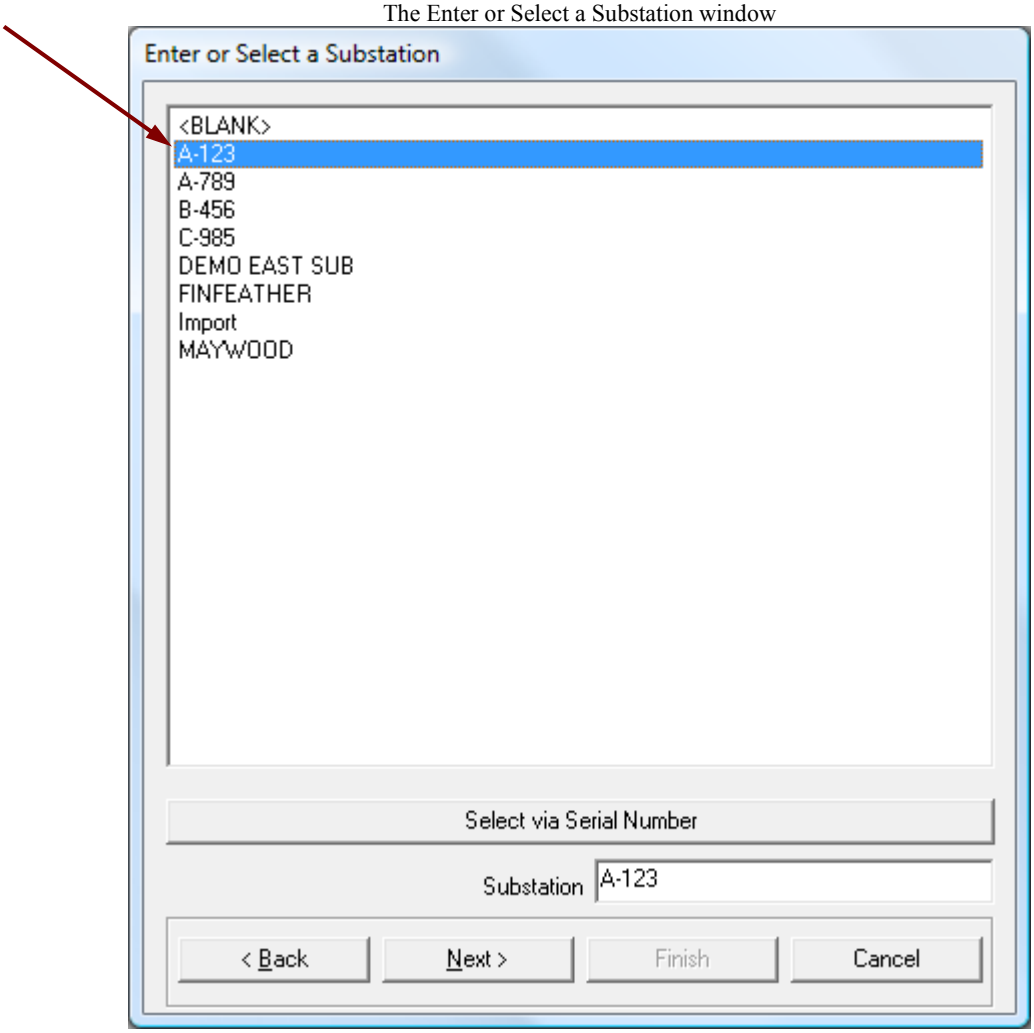
Next the Enter or Select a Plant window will appear.



3) At this point you can select an existing Plant from the upper portion of the window or enter a new Plant name in the edit box. If you select <Insert Test Form At This Level> assets will be added at Level 2. If you are using an existing Plant in the list skip to Step 13. For this example we will select Plant 1000 Industrial Blvd and click Next>.

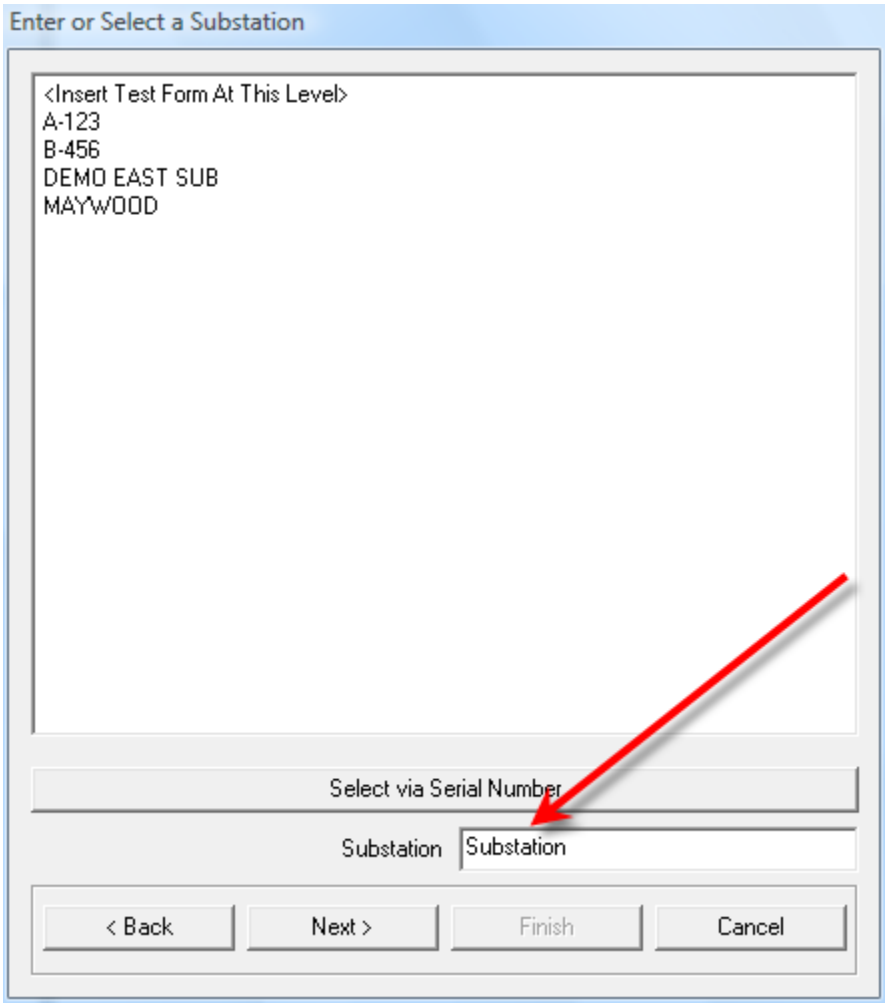
Now the Enter or Select Substation window will appear.

The Enter or Select a Substation window



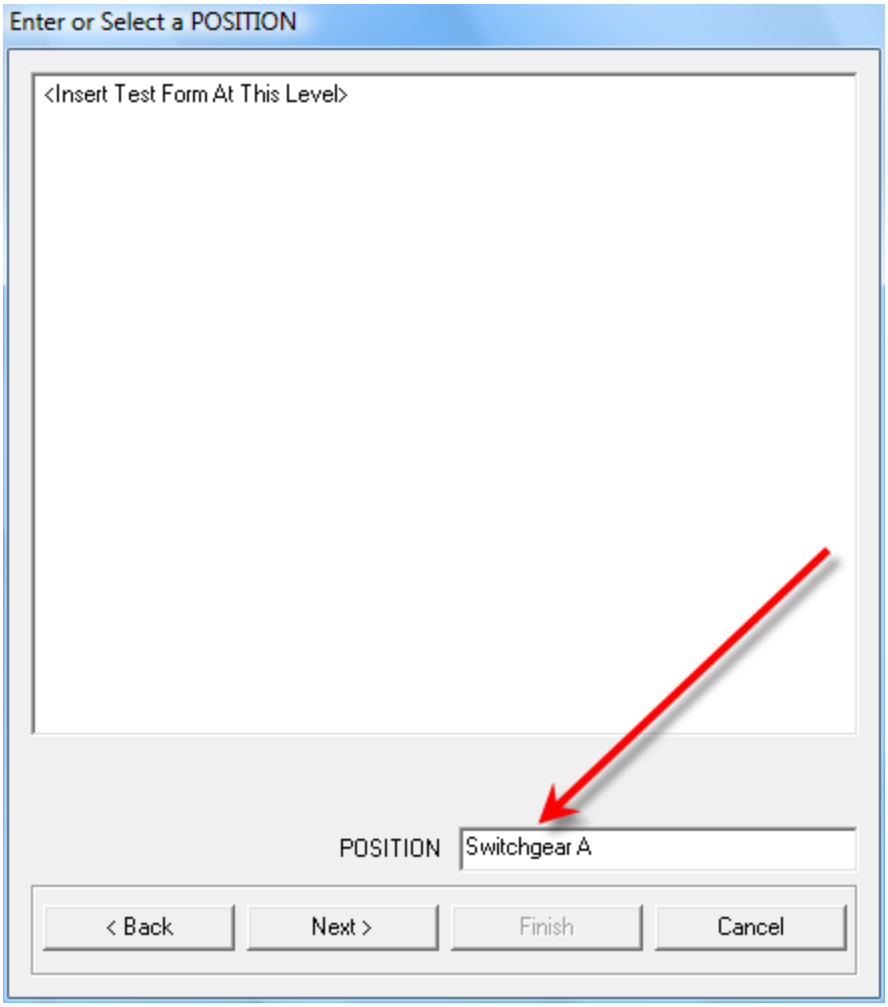
4) At this point you can select an existing substation from the upper portion of the window or enter a new substation in the edit box. If you select <Insert Test Form At This Level> you may add assets at Level 3. If you are using an existing substation in the list skip to Step 13. For this example we will add a new substation. Enter a substation name in the Substation edit box and click Next >.

Enter or Select a Substation Window [Substation A entered]



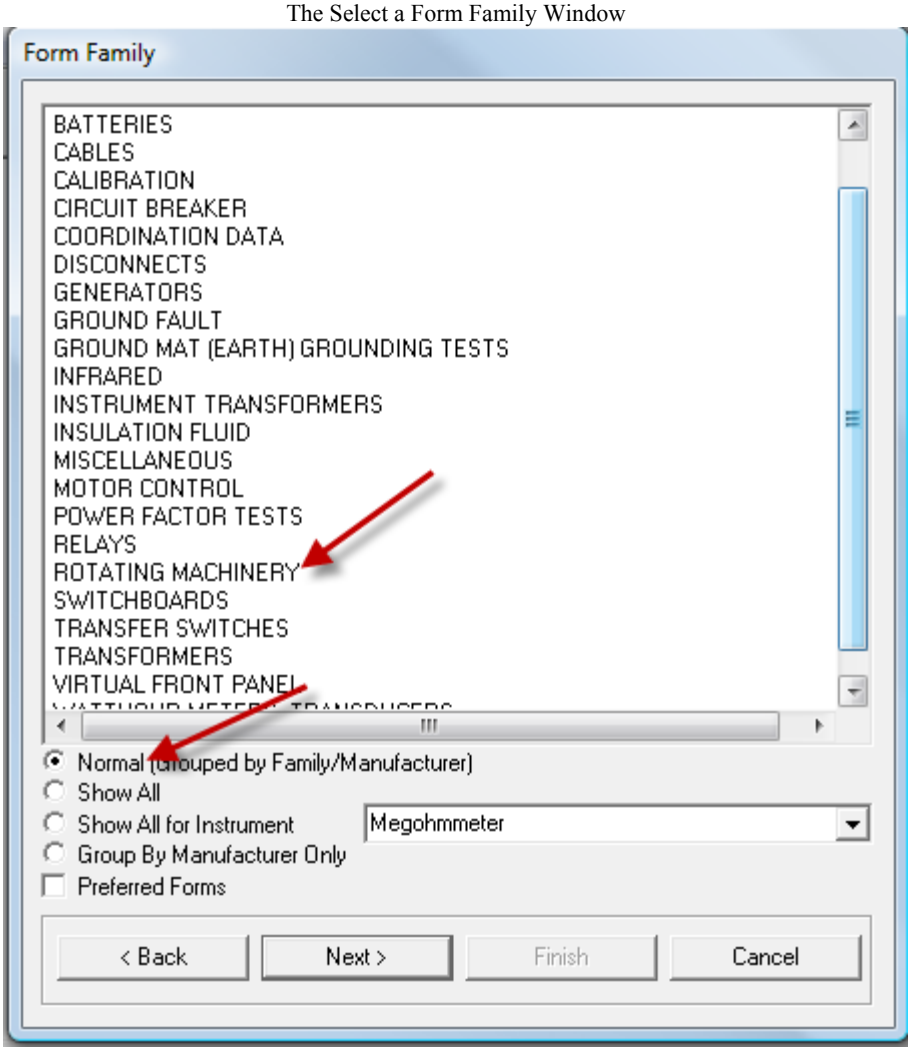
5) Next the Enter or Select a Position window appears; enter the Position name and click on Next>. If you select <Insert Test Form At This Level> you may add assets at Level 4.

The Enter or Select a Position Window [Position Switchgear A entered]



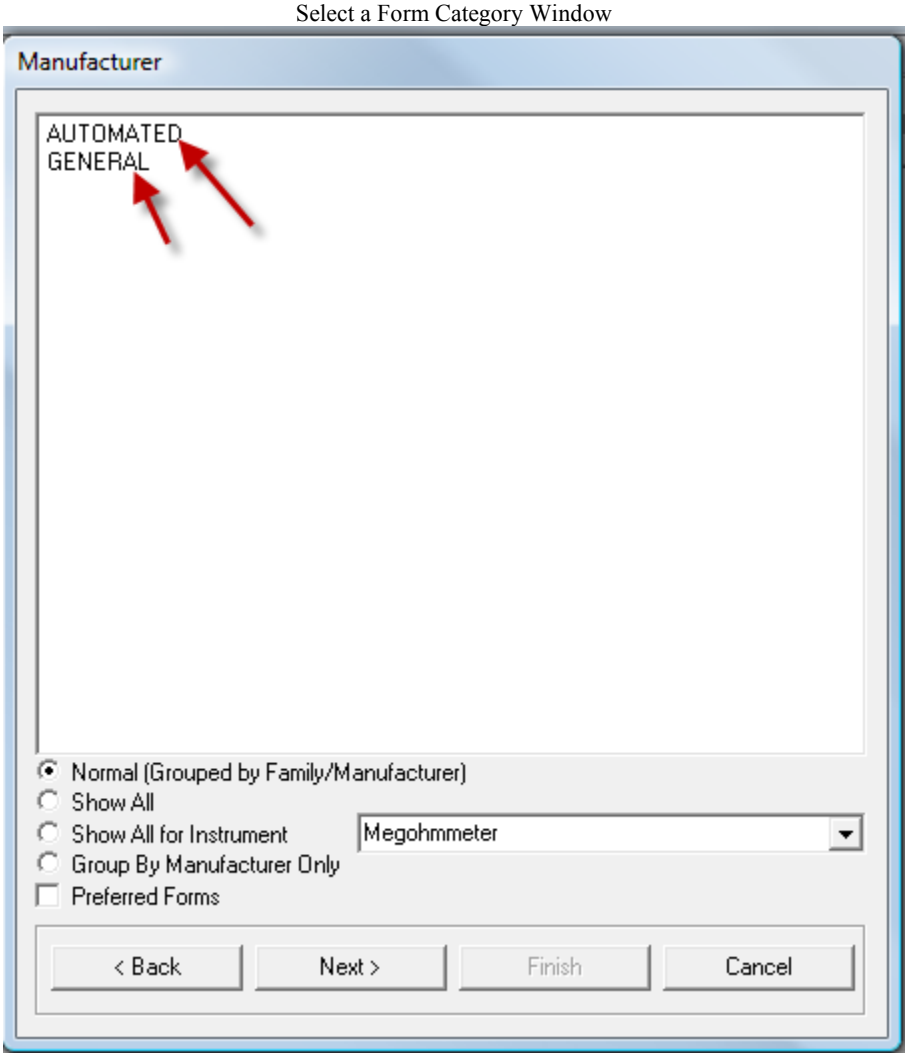
6) The Select a Form Family window will appear. Activating the Preferred Forms checkbox will filter the available list to show only forms designated as Preferred. Unchecking the Preferred Forms checkbox will broaden the available selections. Radio button selections will filter and regroup the viewable listing. Select a Form Family and then click Next>.

The Select a Form Family Window



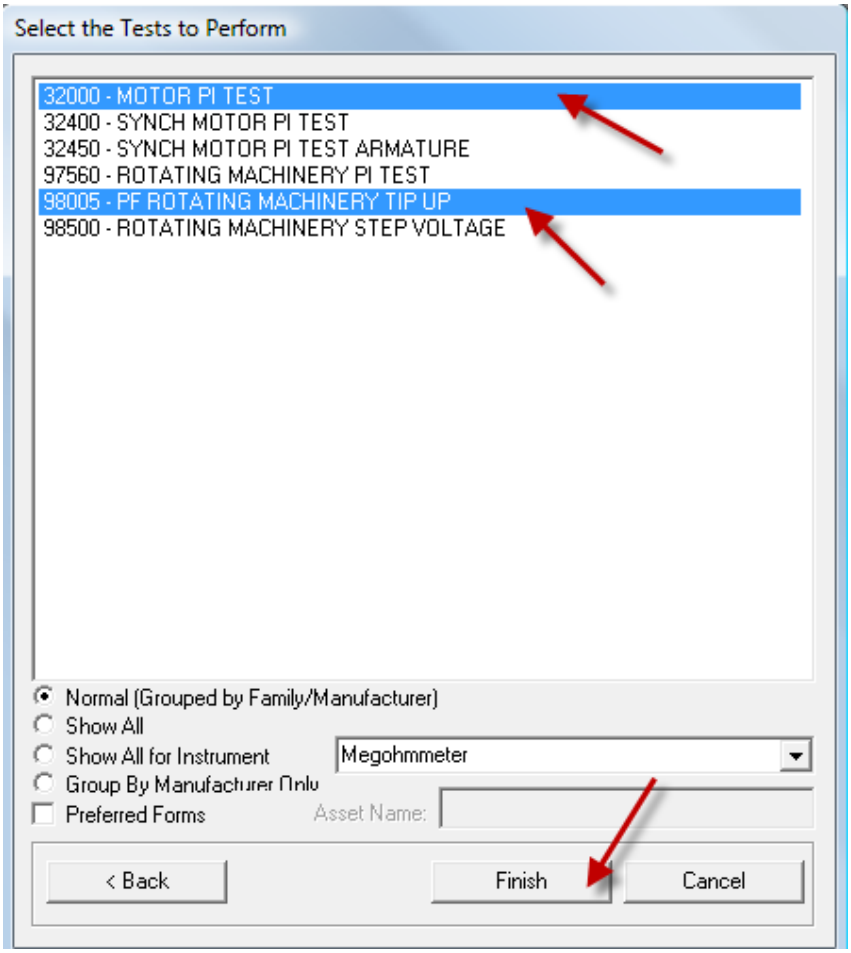
7) If more than one category is available, the Select a Form Category Window appears. The Automated category includes forms with instrument communication or import features. Select the appropriate category from the list and click Next >

Select a Form Category Window



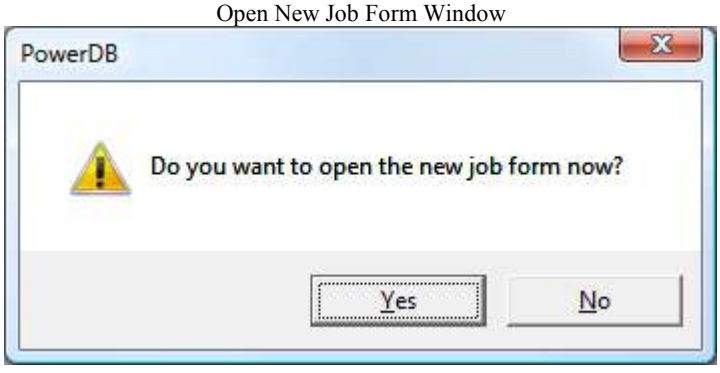
8) The Select the Tests to Perform window appears. Select the test form(s) you would like to add to the Job and click Finish. You may select multiple forms by pressing the Ctrl key.

Select the Tests to Perform Window



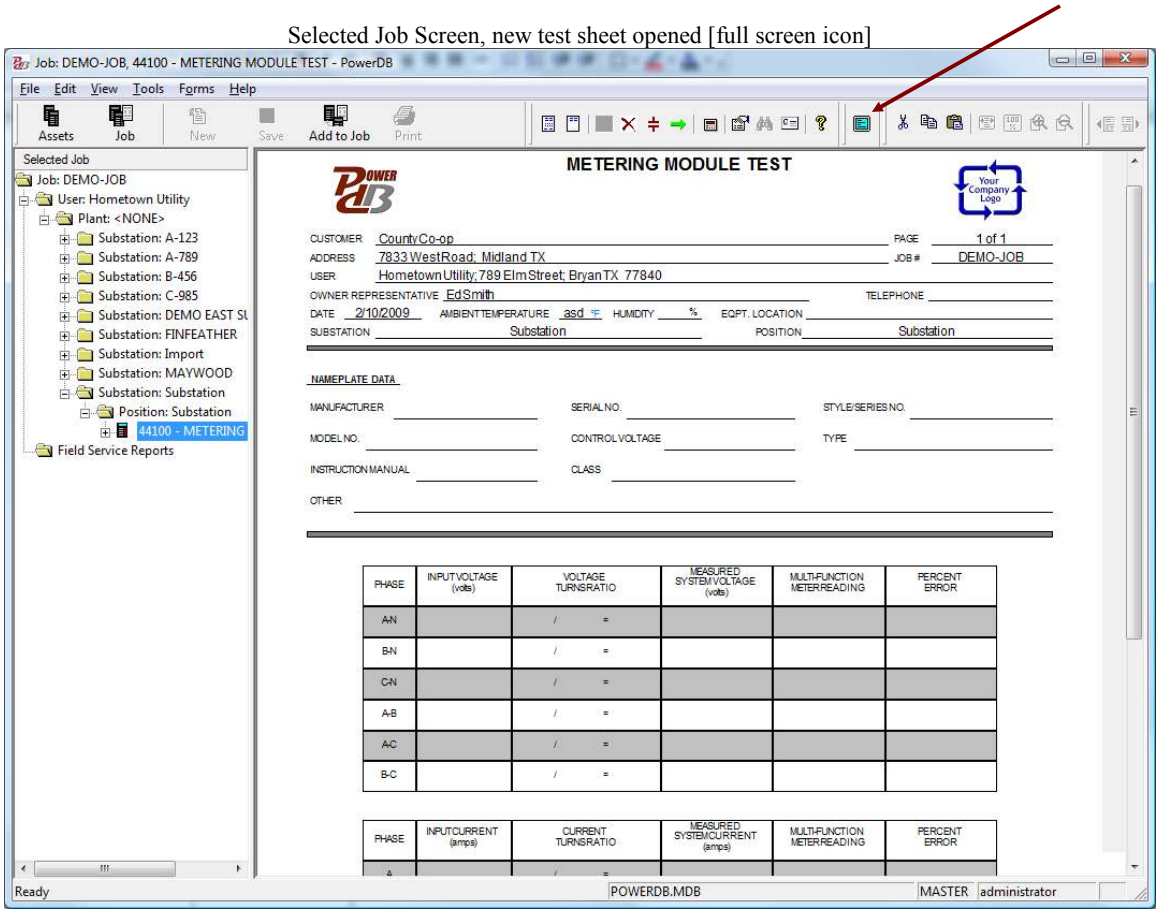
9) If a single form has been added a window will appear asking if you want to open the new Job form now. If you do want to enter data click Yes.

Open New Job Form Window



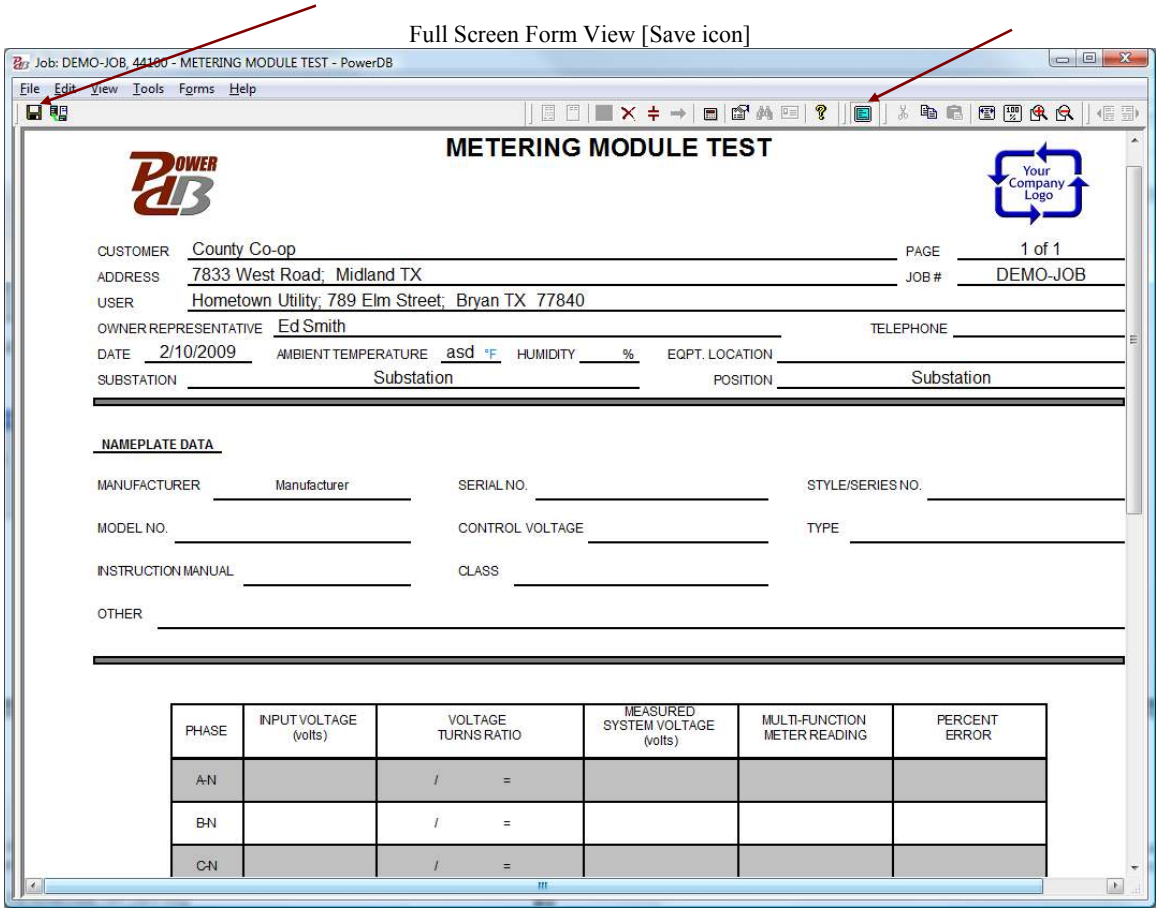
10) The test sheet will be opened. You can now enter test data. To maximize the view click on the full screen icon or set as a default to open to full screen under Tools > Options.

Selected Job Screen, new test sheet opened [full screen icon]



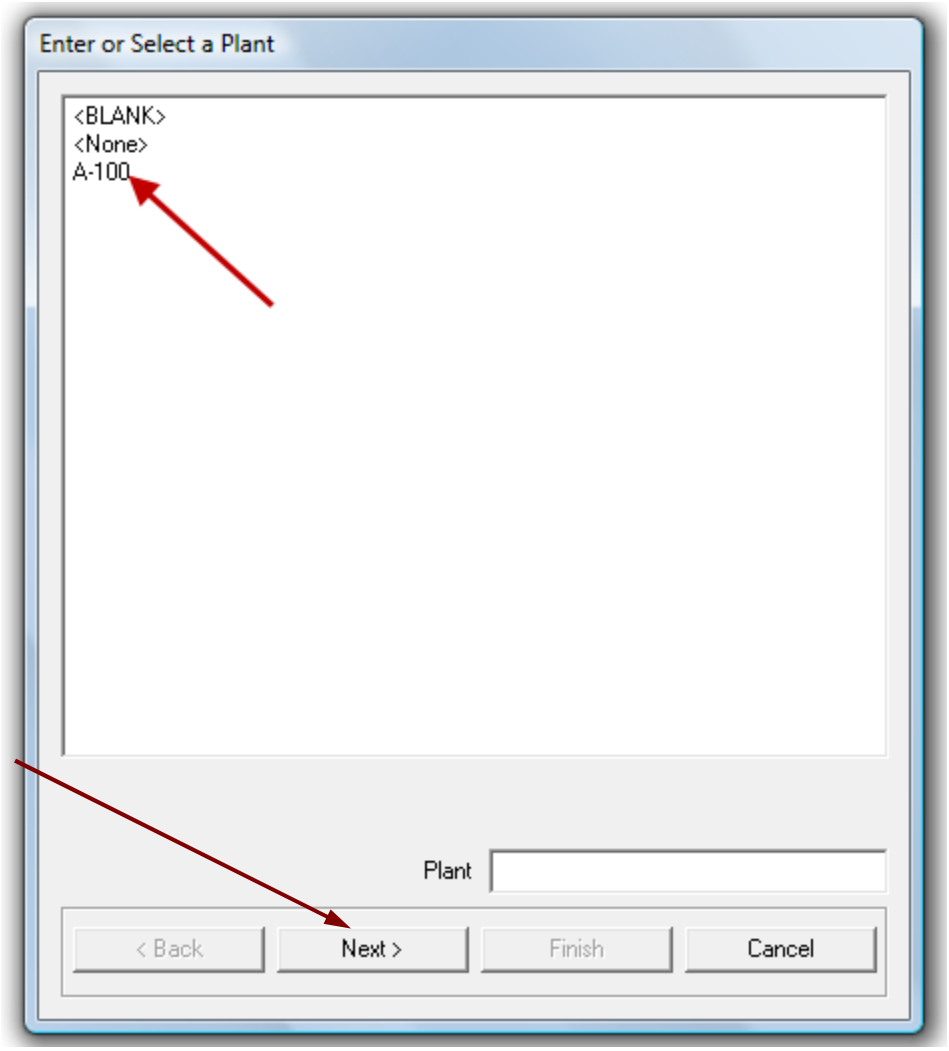
11) Enter the data in the test sheet then click the Save icon. After saving, click the full screen icon again [if you used full screen view] to return to view the Job Tree. Repeat these procedures for each asset.

Full Screen Form View [Save icon]

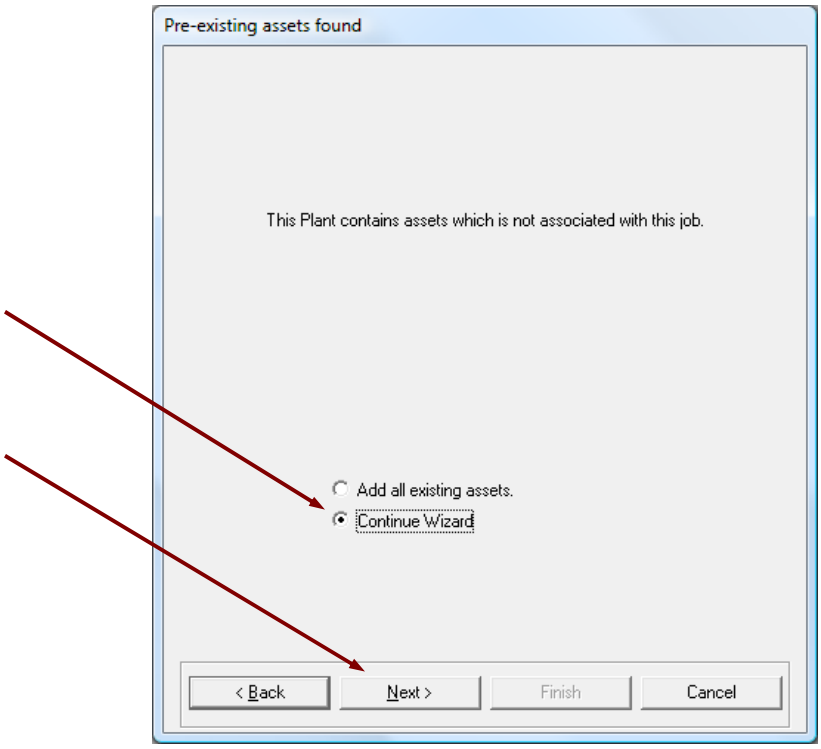


13) Adding Previously Tested Assets to a New Job

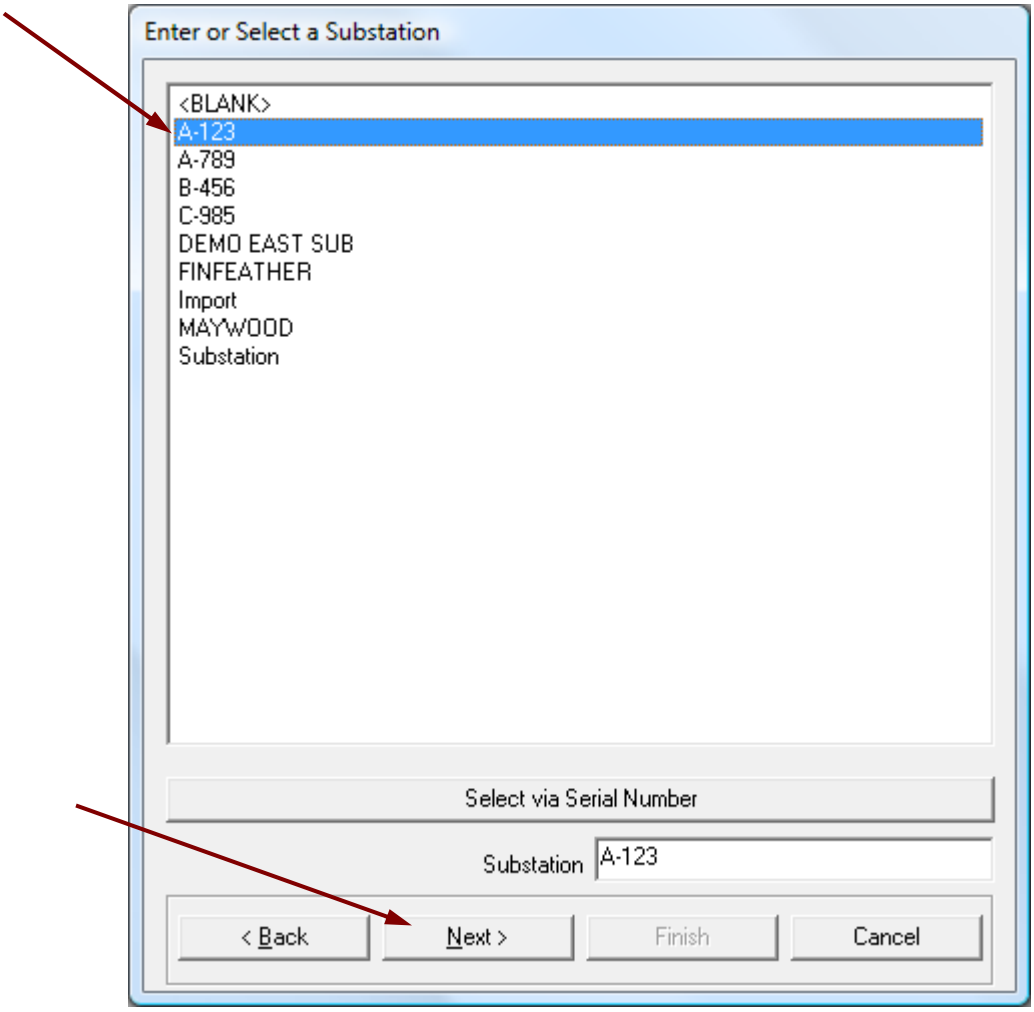
This is especially applicable for jobs that are done repeatedly on the same assets, but are given a different Job Number for billing and reporting purposes. From Step 3, select a Plant that is already listed [in this example we chose A-100] and click Next >.



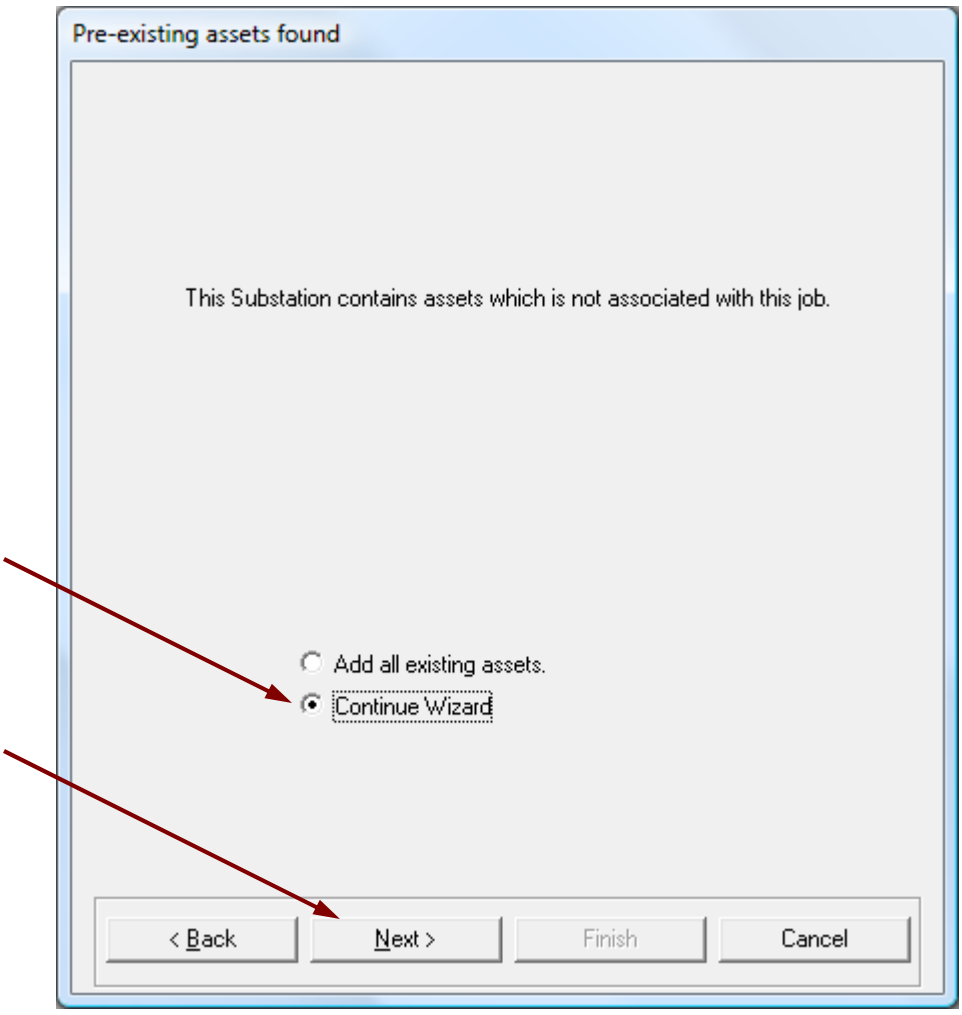
The following screen will appear:



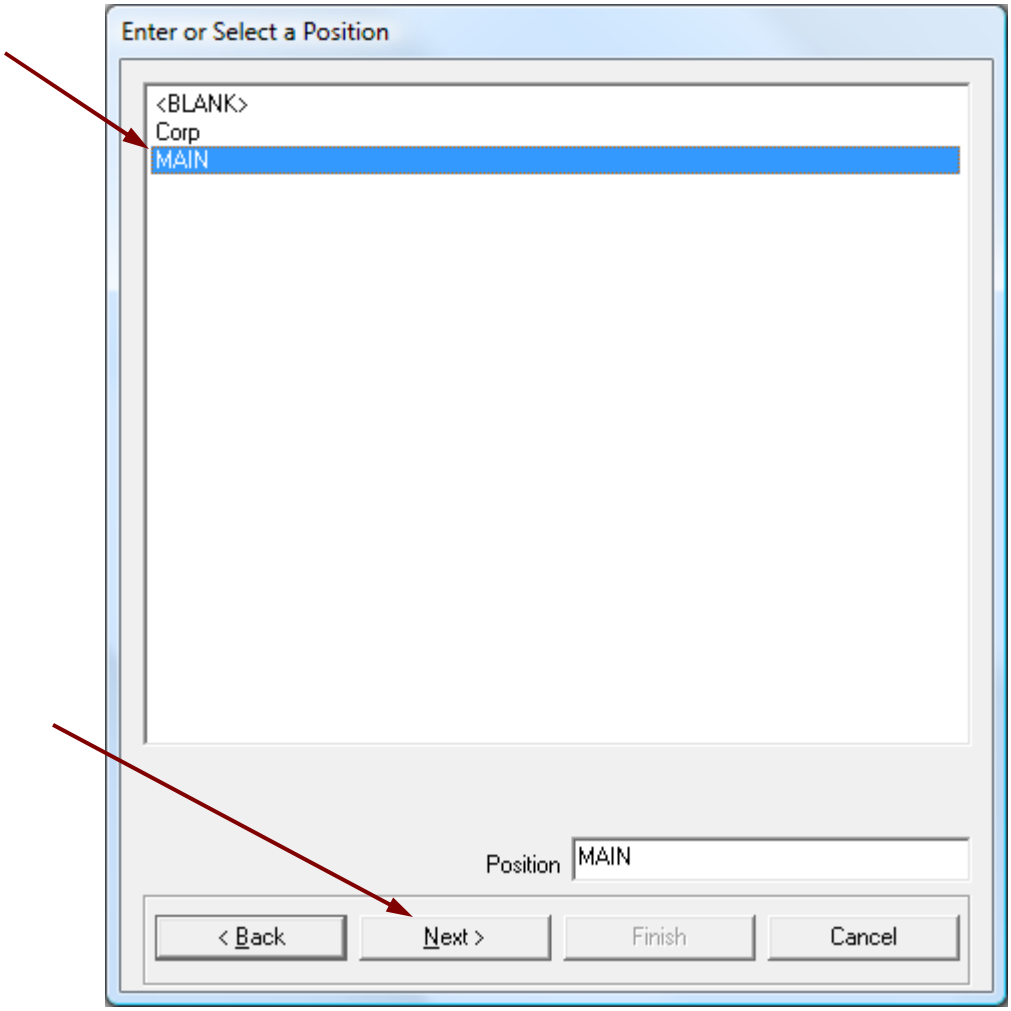
At this point if you select Add all existing assets, then Finish you will add all assets that have been previously tested in that Plant. For this example we will select Continue Wizard, then hit Next >.



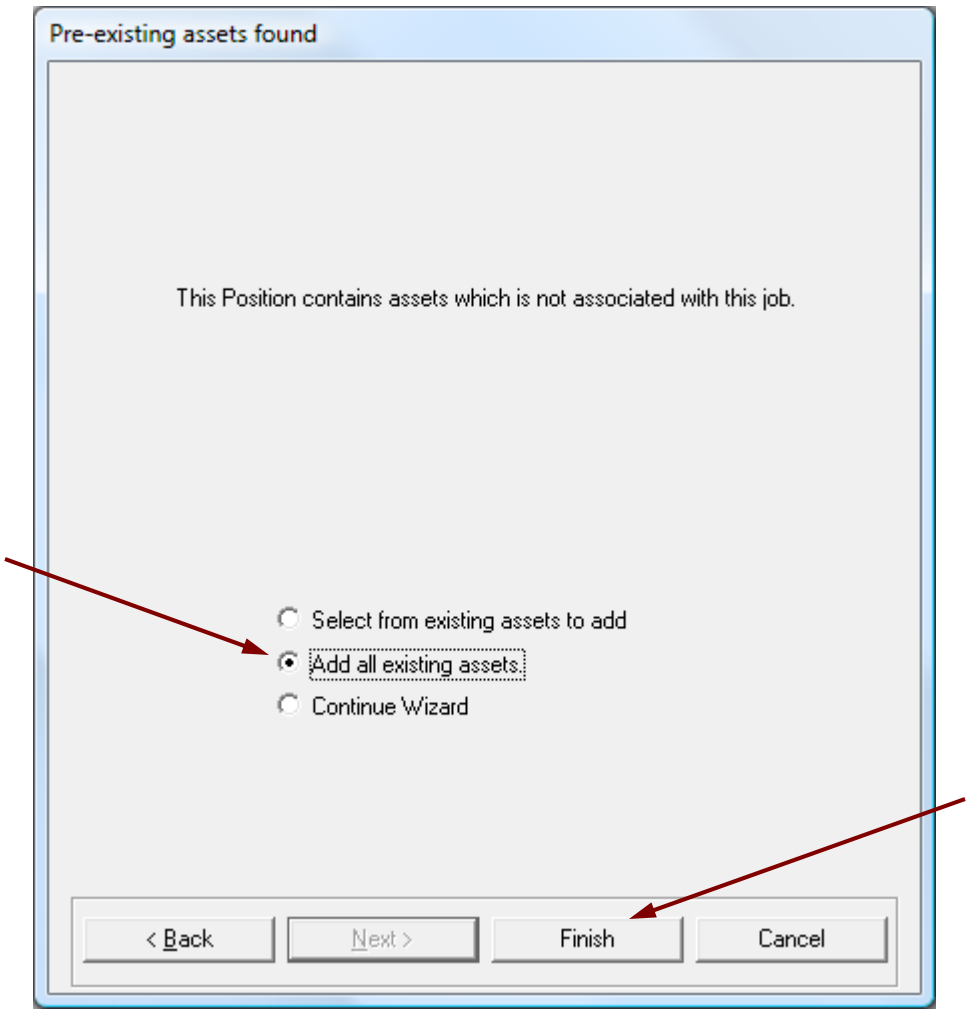
At this point you could add a new Substation name in the edit box or select one of the listed Substations. [For this example we select A-123]. Click Next >.



From this screen select Add all existing assets to add assets previously tested at the specified Substation A-123 or select Continue Wizard. For this example we will select Continue Wizard and click Next >.



At this point you could add a new position name in the edit box or select one of the listed Positions. [For this example we select MAIN]. Click Next >.


Pre-existing assets found
This Position contains assets which is not associated with this job.
Select from existing assets to add
Add all existing assets.
Continue Wizard
< Back
Next >
Finish
Cancel

From this screen select Continue Wizard to add new assets, or choose to select or add all previously tested assets. Click Finish to complete the wizard.

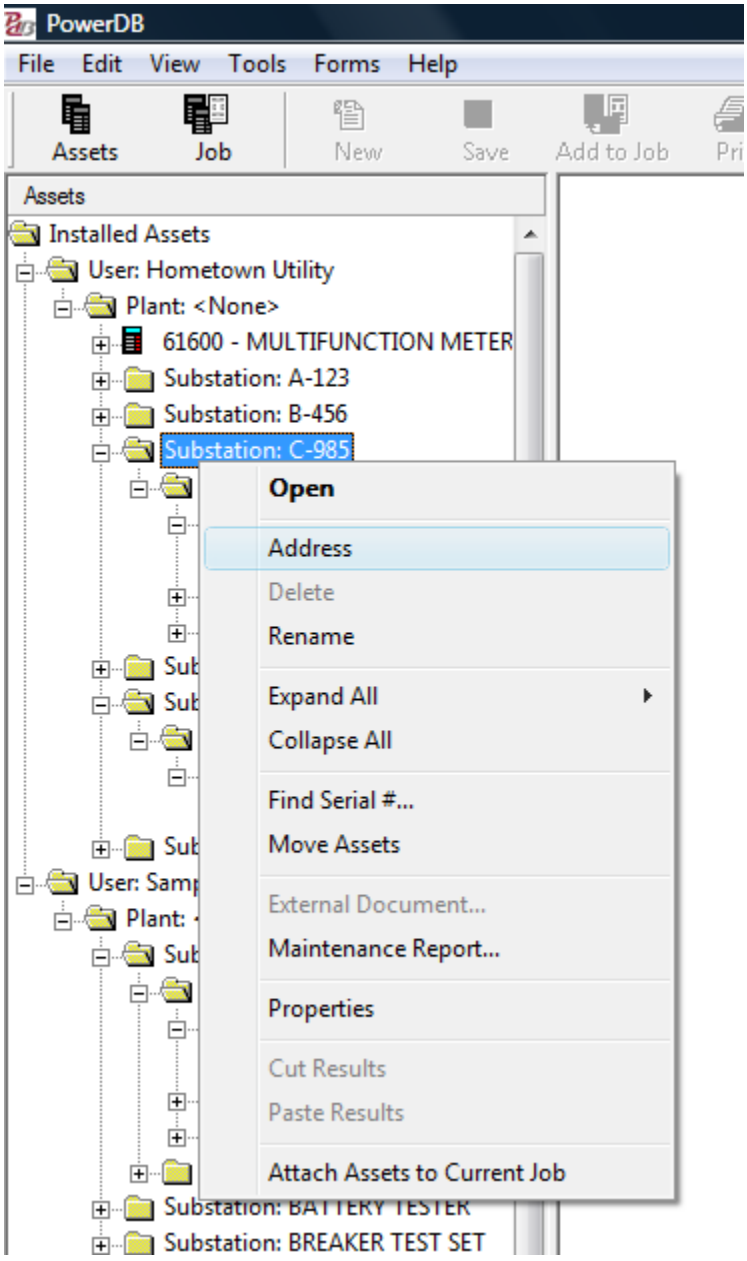
Note that the new test form(s) is added to the Job Tree. The Nameplate data is filled in from the prior test and current test results need to be entered and saved.

4. Managing Your Data

Test results are stored to a database which then allows you to view, retrieve, query and analyze the data. Proper backup procedures should always be followed for all databases.

4.1. Asset Tree Right-Click Menu

To access the Asset Tree, click on the Asset toolbar button. The right-click menu in the asset tree allows users to manage data with a variety of options. Use the cursor to expand the folders. When an asset is selected a single right-click will bring up the following list of options:



- **Open**

Click "Open" to open the selected asset results. When selected, a full screen view of the form is brought up. You can get back to the asset tree by clicking on "File" > "Close".

- **Address**

The Address option allows you to view the address book.

- **Delete**

The "Delete" option can be used to permanently delete the selected asset from the database. Once selected the user will be prompted to permanently delete the record or not.

- **Rename**

(Substation Folder, Position Folder, or Asset only)
Allows the user to edit the name. Clicking off of the name will save the changes made when renaming.

- **Expand All**

Expands the folder contents to Asset level or to Data Sets level.

- **Collapse All**

Collapses the folder contents.

- **Find Serial #**

Allows users to search the Asset Tree for data sets by serial number.

- **Select Different Form**

Allows users to select a different form to be used in the future but will keep the data association in the results tree, and historical results will be reported in their original form definition.

- **Move Assets**

This option allows you to move the asset to another location in the tree. A dialog box will prompt you to select the appropriate tree designations you wish to move the selected asset to.

- **External Document**

The External document option allows the user to attach a separate document to the asset form, such as an Excel or PDF document. There are three options to adding an External Document. The first is Attach Document, which allows the user to select which document they wish to attach by browsing through the folders on their machine. The second is View the current Attachment. This allows the user to see the document that they attached to the form. Finally, Remove the current attachment allows the user to clear the document if they do not wish to add it to the form. Click "Close" to clear the external form options and keep the documents attached.

- **Maintenance Report**

The Maintenance Report allows the user to select a timeframe that maintenance is scheduled to be performed and display only those assets that fall within that maintenance time period.

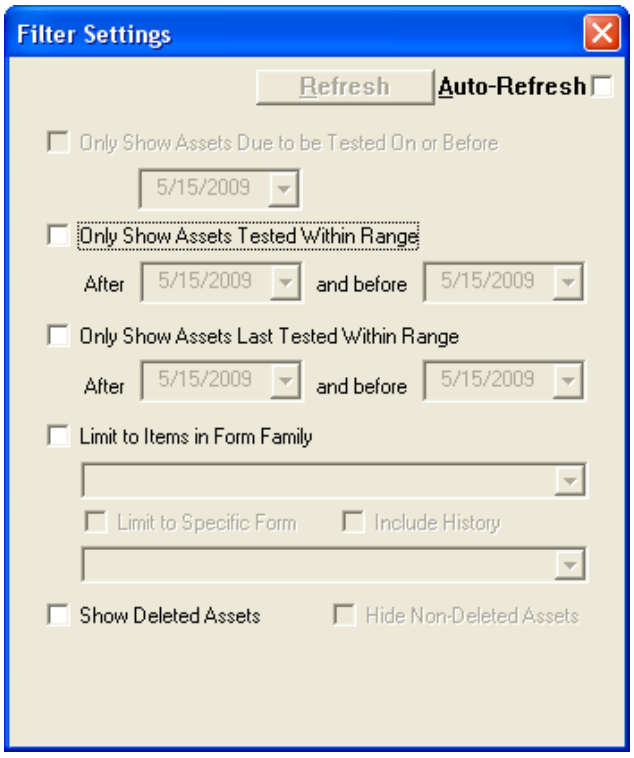
- **Properties**

Selecting "Properties" gives the user information such as description, location, form number, and attributes for the asset. The attributes section allows the user to select the maintenance period for the selected asset.

4.2. Asset Tree Filtering

When the database contains a large amount of data, the Assets listing may consist of a very long list, making it difficult to locate a specific piece of information. Filter Settings may be applied so that only a subset of the entire listing is viewed at one time, making it easier to locate a specific asset or group of assets.

The filtering control button appears on the tool bar with an icon that resembles a funnel . Pressing this button causes the following dialog box to appear.



When the dialog box is open, the filter button will not be visible on the tool bar.

Changes to Filter Settings are applied to the Asset Tree. They can be applied one at a time, or multiple settings may be applied at the same time. Once Filter Settings are made, the dialog box may be closed by pressing the close button, at which time the

settings take effect. Filter Settings will remain in effect until they are manually removed by re-opening the dialog box and changing or removing settings.

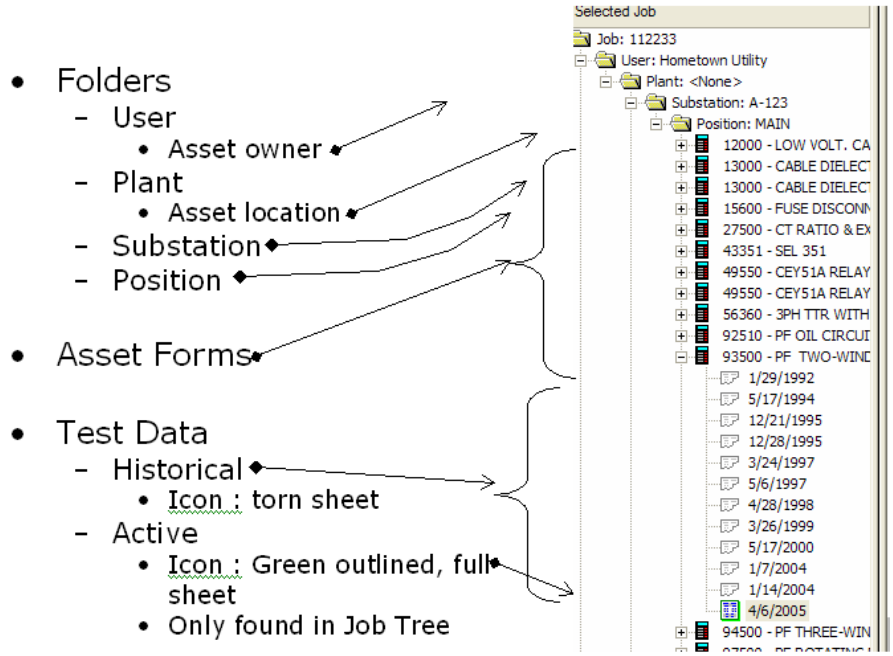
The individual controls in the dialog box are described as follows:
Refresh – If any selection on the dialog box is changed, this button becomes active and, when pressed, immediately updates the Asset Tree leaving the dialog box open.
Auto-Refresh – If this checkbox is selected, changes to the filter settings take effect immediately as they are selected without the need to push the Refresh button.
Only Show Assets Due to be Tested On or Before – This selection will filter the tree to show only those assets that meet the criteria of the date entered.
Only Show Assets Tested Within Range – This selection will filter the tree to show only those assets that meet the criteria of the dates entered.
Only Show Assets Last Tested Within Range – This selection will filter the tree to show only those assets that meet the criteria of the dates entered.
Limit to Items in Form Family – Removes all assets from the listing that do not have a test form from the selected Form Family. If this is selected, the *Limit to Specific Form* and *Include History* options are enabled.
Show Deleted Assets – This will allow all deleted assets to appear in the Asset tree. If this is selected, then the *Hide Non-Deleted Assets* selection is enabled. If both are selected, then the Asset Tree will show only deleted assets.

The filter that applies when viewing the Asset Tree does not affect the Jobs listing or the Selected Job tree.

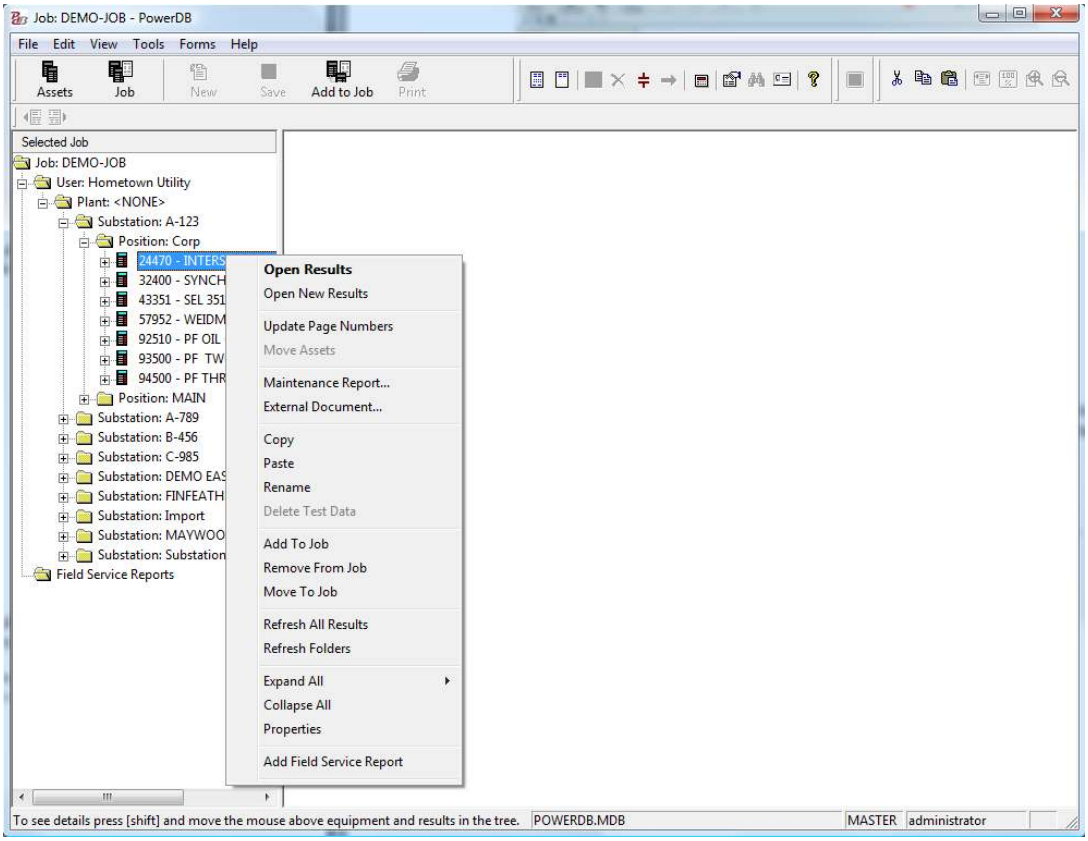
4.3. Job Tree Right-Click Menu

The Job Tree can be displayed by double clicking a job on the Job List, or by selecting a Job and choosing 'Open' from the right-click menu. You may expand and view all subfolders in the Job Tree by selecting Expand All from the right click menu. The Job Tree will always show any Field Service Reports associated with the Job.

The following image identifies the Job Tree hierarchy.



The right-click menu in the Job Tree allows users to manage data with a variety of options. When a Job is selected a single right-click will bring up the following list of options:



- **Open Results**

Click "Open Results" to open the data results.

- **Open New Results**

Click Open New Results to push existing data results to history and open a new set of results for the same asset, pre-populating fields flagged as Nameplate or Copy History.

- **Update Page Numbers**

To be used after sorting and pagination has been set through Print Job Results to refresh page numbers for new data sets or changes.

- **Maintenance Report**

The Maintenance Report allows the user to select a time interval that maintenance is scheduled to be performed and display a listing of assets that fall within that maintenance time period.

- **External Document**

The External document option allows the user to attach a separate document to the form, such as an Excel or PDF document. There are three options to adding an External Document. The first is Attach Document, which allows the user to select which document to attach. The second is View which allows the user to see the document they attached to the form. Finally, Remove allows the user to clear the document if they do not wish to associate it to the form. The External Documents option in the Job Tree also allows the user to specify whether the document is a Job Specific document, a General Asset document, or a Form document.

- **Copy**

Allows you to copy the tree structure at any level below Level 2.

- **Paste**

Allows you to paste the tree structure at any level below Level 2. The pasted information will be followed by '(2)' at the highest level.

- **Rename**

When selected allows the user to edit the name. Clicking off of the name will save the changes made when renaming.

- **Delete Test Data**

Allows you to permanently remove results from the database.

- **Add to Job**

Opens the Add to Job wizard.

- **Remove from Job**

This will remove the selected asset from the tree. This will not delete the asset or its results from the database.

- **Move to Job**

Allows you to move results to a different Job.

- **Refresh all results**

Opens and resaves all results sets.

- **Refresh Folders**

Restructures tree to reflect all results to the User and Plant as specified by Job Properties.

- **Expand All**

Expands all folder contents.

- **Collapse All**

Collapses all folder contents.

- **Properties**

Selecting "Properties" gives the user information such as description, location, form number, and attributes for the asset. The attributes section allows the user to select the maintenance period for the selected asset.

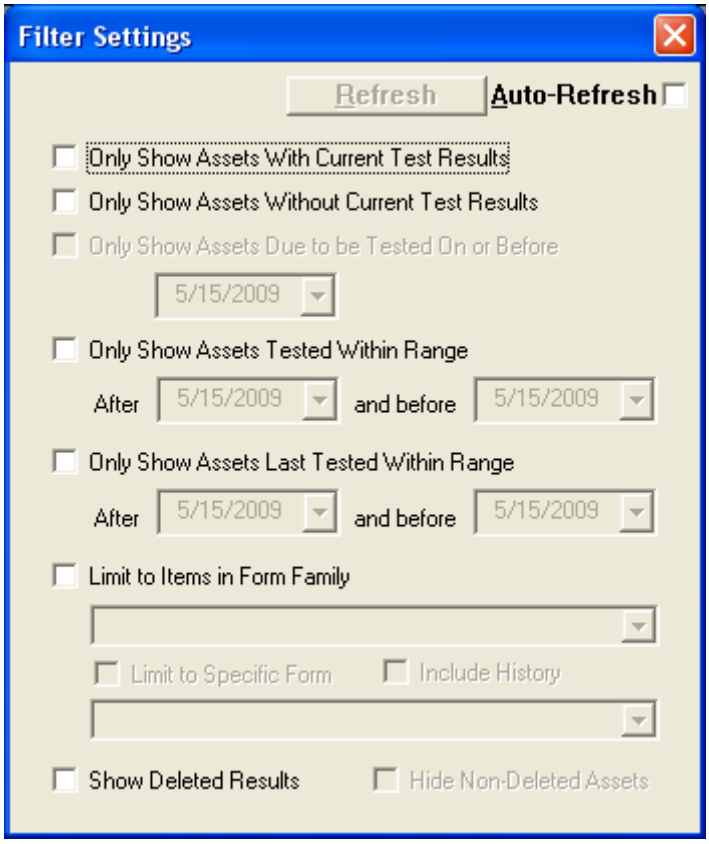
- **Add Field Service Report**

This function allows the user to add one or more service reports to the Job. The form contains descriptive information on the Job and allows the user to write a detailed report of work performed.

4.4. Job Tree Filtering

When the database contains a large amount of data, the Selected Job tree may be very long, making it difficult to locate a specific piece of information. Filter Settings may be applied so that only a subset of the entire tree is viewed at one time, making it easier to locate a specific asset or location in the tree.

The filtering control button appears on the button bar in the application with an icon that appears to look like a funnel . Pressing this button causes the following dialog box to appear.



When the dialog box is open, the filtering control button will not be visible on the button bar.

Changes to Filter Settings are applied to the Selected Job tree. They can be applied one at a time, or multiple settings may be applied at the same time. Once Filter Settings are made, the dialog box may be closed by pressing the close button, at which time the settings take effect. Filter Settings will remain in effect until they are manually removed by re-opening the dialog box and changing or removing settings.

The individual controls in the dialog box are described as follows:
Refresh – If any selection on the dialog box is changed, this button becomes active and when pressed, immediately updates the Selected Job tree leaving the dialog box open.
Auto-Refresh – If this checkbox is selected, changes to the filter settings take effect immediately as they are selected without the need to push the Refresh button.
Only Show Assets With Current Test Results – This selection will filter the tree to show only those assets that include active forms.
Only Show Assets Without Current Test Results – This selection will filter the tree to show only those assets that do not include active forms.
Only Show Assets Tested Within Range – This selection will filter the listing to show only those assets that meet the criteria of the dates entered.
Only Show Assets Last Tested Within Range – This selection will filter the listing to show only those assets that meet the criteria of the dates entered.

Limit to Items in Form Family – Removes all assets from the listing that do not have a test form from the selected Form Family. If this is selected, the *Limit to Specific Form* and *Include History* options are enabled.
Show Deleted Results – This selection causes all deleted results to appear in the Selected Job tree. If this is selected, the *Hide Non-Deleted Assets* option will be enabled. If both are selected, then the tree will only show deleted results.

The filter that applies when viewing the Selected Job tree does not affect the Assets list or the Jobs list.

4.5. Job List Filtering

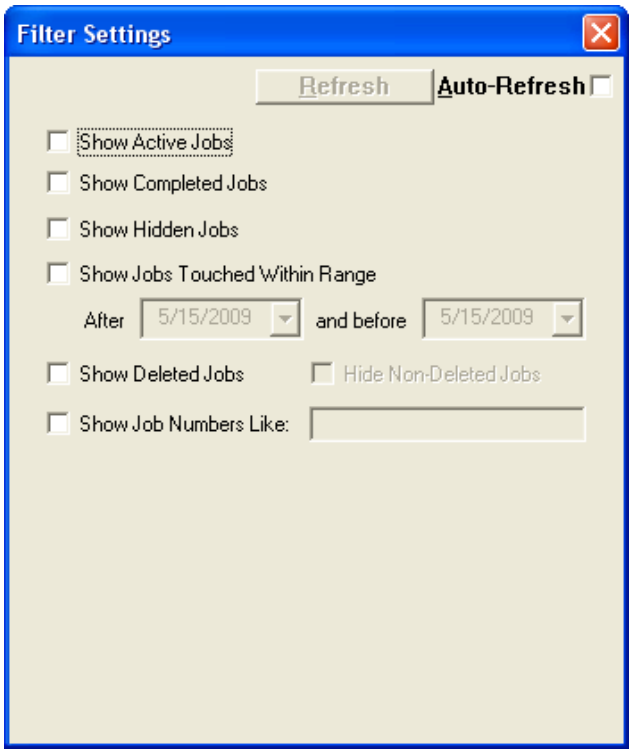
When the database contains a large amount of data, the Job Tree may be very long, making it difficult to locate a specific piece of information. Filter Settings may be applied so that only a subset of the entire listing is viewed at one time, making it easier to locate a specific job or group of jobs.

The filtering control buttons appear on the button bar in the application with icons that resemble funnels .

- This button, when pressed, causes all Active jobs to appear in the Jobs list. Releasing this button from the depressed position will remove all Active jobs from the list view.

- This button, when pressed, causes all Completed jobs to appear in the Jobs list. Completed jobs appear with a "C" in the column directly to the left of the job number. Releasing this button from the depressed position will remove all Completed jobs from the list view.

- This button causes the following dialog box to appear.



When the dialog box is open, the filter buttons will not be visible on the tool bar.

Changes to Filter Settings are applied to the Job List. They can be applied one at a time, or multiple settings may be applied at the same time. Once Filter Settings are made, the dialog box may be closed by pressing the close button, at which time the settings take effect. Filter Settings will remain in effect until they are manually removed by re-opening the dialog box and changing or removing settings.

The individual controls in the dialog box are described as follows:

Show Active Jobs – This selection provides the same function as the button. If the button is depressed prior to entering the settings dialog box, this feature will already be selected.

Show Completed Jobs – This selection provides the same function as the button. If the button is depressed prior to entering the settings dialog box, this feature will already be selected.

Show Hidden Jobs – If this checkbox is selected, all Hidden jobs will appear in the Jobs list. Note: Hidden Jobs are a legacy feature not commonly used.

Show Jobs Touched Within Range – Jobs that have been edited between the dates entered will be displayed. All other jobs will not be visible.

Show Deleted Jobs – This selection causes all deleted jobs to appear in the Jobs list. If this is selected, the *Hide Non-Deleted Jobs* option will be enabled. If both are selected, then the Job List will only show deleted jobs.

Show Job Numbers Like: – If selected, any entry in the adjoining field will filter the Jobs List. Job numbers that contain the sequence of characters or numbers that are entered

will be displayed in the Job List. The more characters that are entered, the fewer jobs that will match the entry and the smaller the listing becomes.

The filter that applies when viewing the Job List does not affect the Assets Tree or the Selected Job Tree.

4.6. Add to an Existing Job

Refer to Section 3 for steps related to using the Add to Job Wizard to add assets and results to a Job.

4.7. Copy Job

To copy a Job, select a Job from the Job List, then chose Copy then Paste from the right click menu. The duplicated job should be given a new job number under the General tab of the Job Properties dialog box. The duplicated job will be added to the Job List.

4.8. Recording Test Data

To store results to the database, test forms are opened and test results are entered into the test forms by manual data entry, data import or data capture from a test instrument. Test data can be manually entered into a form for each asset that is part of a Job. Open a Job and then double-click an asset in the tree. A data entry form appears on the right hand side of the screen. If the asset has previously been tested in this job, the most recently saved data will be loaded into the form. Clicking in or tabbing to a field will set focus to it so that the data may be changed. A checkbox or radio button state may be changed by clicking in the field or by pressing the space bar. A selection may be made in a dropdown box by clicking on the desired entry or by pressing the right and left arrow buttons to highlight the desired selection. The tab key will make the next field for the test active; shift-tab will go back to the previous field. You can quickly navigate around the test form by using the up and down arrow keys. The data may be saved at any time by clicking the 'Save' button (or *Ctrl+S*). Each form provides a field-testing data entry tab order. This can be changed to a left to right, top to bottom sequence by selecting Reading Data Entry Order from the Forms toolbar button. You may deselect this selection by un-checking this menu item.

4.8.1 Changing Previous Test Data

Each set of results for an asset is identified in the Job tree by a test date below the asset name. Data from a particular dated set of results test may be viewed by selecting the results and choosing 'Open' from the right-click menu,or double-clicking the results. If the set of results is also from the Selected Job the test results may be modified.

The entire test history for an asset is shown in the tree. A full report form icon indicates results from the Selected Job, while a partial report form icon identifies those from other jobs. Any set of results can be opened from the Selected Job, but only results associated with the Selected Job may be edited.

4.8.2 Flagging Problematic Test Values

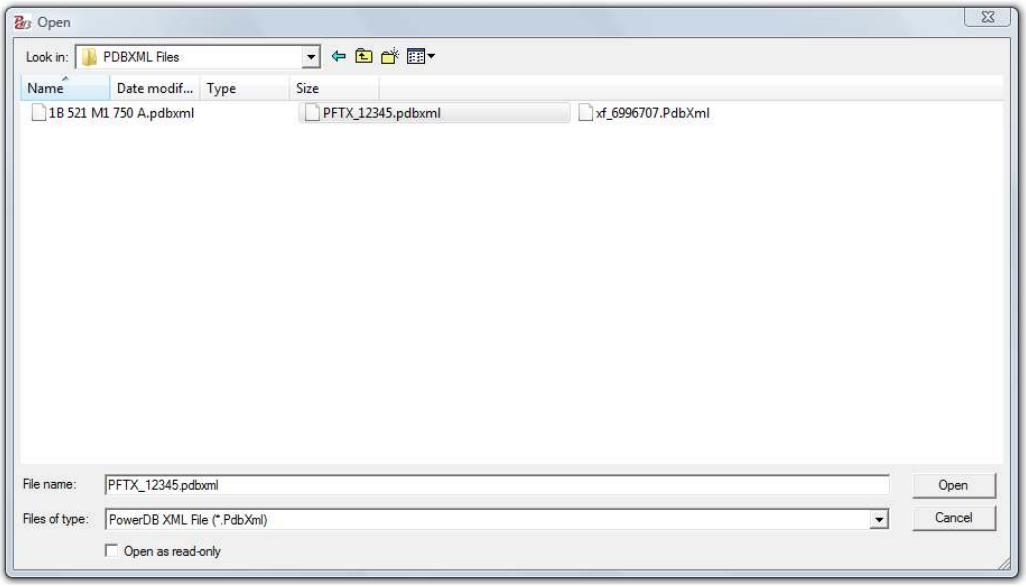
While entering data in a job, right-click on a field and select "Toggle Flag as Error" option which will display and print the selected value in red.

4.9. Importing Test Data

Data can be imported into PowerDB from various applications and sources.

4.9.1 Importing PowerDB Lite Results

PowerDB Lite is a companion product to the full version of PowerDB. PowerDB Lite is a turnkey reporting tool provided with many of the Megger test instruments. Results saved in PowerDB Lite can be imported into PowerDB. To move Lite results into PowerDB open the Job you wish to import the results into. Go to File > Open Results(PdbXml) and browse to and select the data file saved in Lite, then click the Open button. If you select a location in the Job Tree before you select your Lite file, the results will be added to that location in the tree. If location information is indicated in the Lite file, the results will be added in the Job Tree as defined in Lite. If no location information is present the results will be brought into the tree into folders named Import.

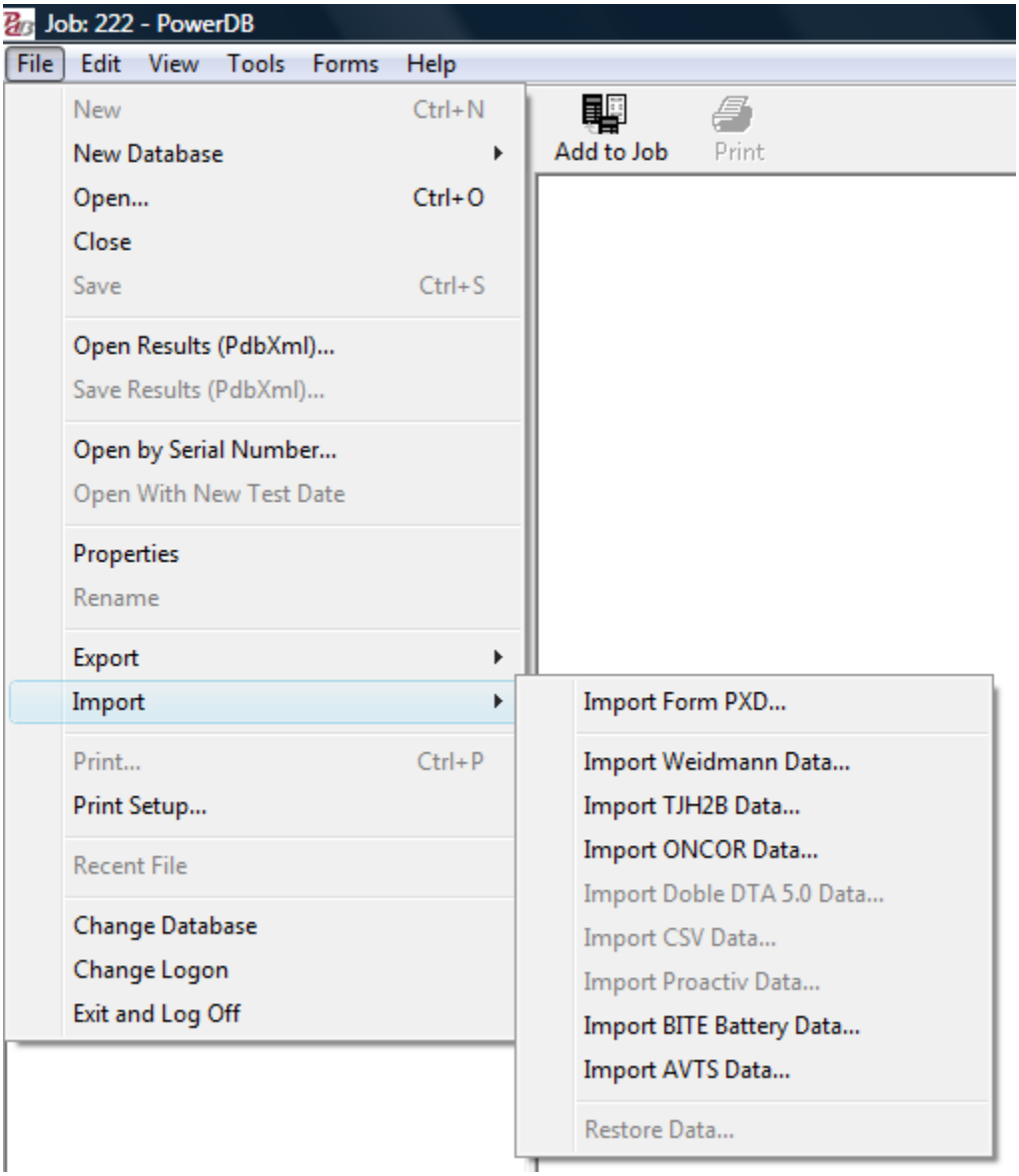


4.9.2 Importing PowerDB Onboard Results

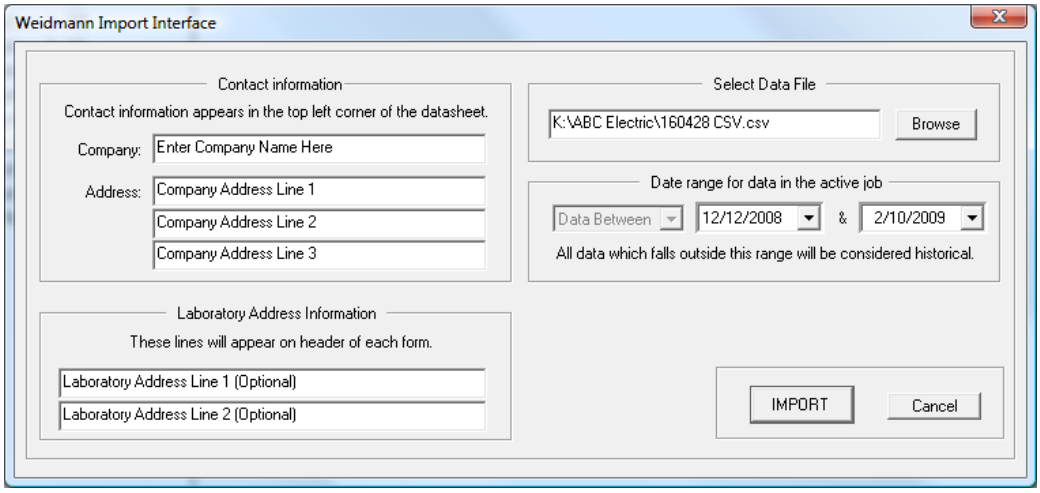
PowerDB Onboard is a companion product that runs PowerDB Software on a computer inside certain Megger test instruments. Test results are transferred from the instrument with a standard USB drive and can be imported into PowerDB. Open the Job you wish to import the results into. Go to File > Open Results(PdbXml) and browse the USB drive directory to select the data file saved with Onboard, then click the Open button. If you select a location in the Job Tree before you select your Onboard file, the results will be added to that location in the tree. If location information is indicated in the Onboard file, the results will be added in the Job Tree as defined in Onboard. If no location information is present the results will be brought into the tree into folders named Import.

4.9.3 Oil Analysis Results

PowerDB will import results from various oil analysis laboratories. For each of these imports described below simply have the job open that you wish to import the results into. From the File menu select Import, and then select the appropriate data results.

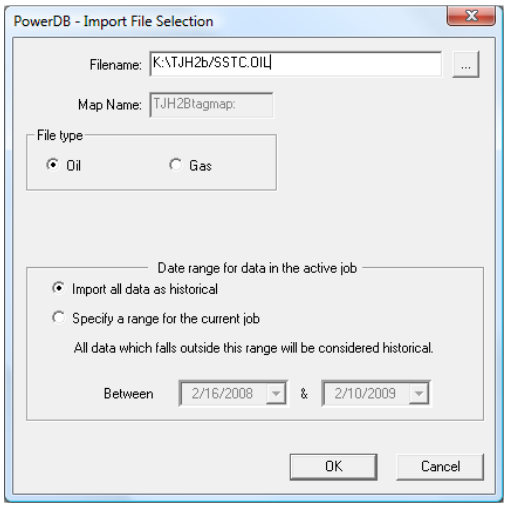


4.9.3.1 Weidmann-ACTI Data



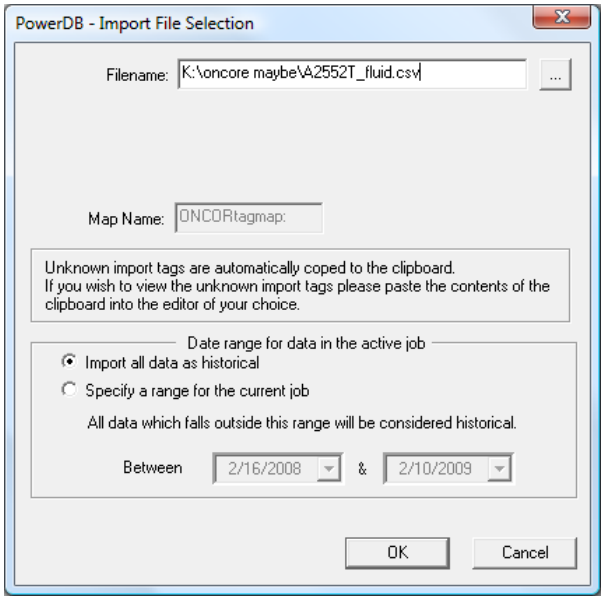
Enter the address information in the left side of the import dialog box. Click the Browse button and select the data file in .csv format provided by the laboratory. Complete the date range selections and click the Import button. PowerDB will automatically add the required number of test forms based on the number of results sets contained in the data file. Header and results data will be populated to each test form. Job tree hierarchy such as Substation and Position are not part of the data file. The first time results are imported into PowerDB all will be saved to the tree in a folder named Import. You may change this designation by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results for assets will match based on the asset serial number and associate additional results with results already stored in the database.

4.9.3.2 TJH2b Data



Click on the Browse button and select the data file to import. Select the appropriate File Type radio button as to Oil or Gas. Complete the date range selections and click the Import button. PowerDB will automatically add the required number of test forms based on the number of results sets contained in the data file. Header and results data will be populated to each test form. Job tree hierarchy such as Substation and Position are not part of the data file. The first time results are imported into PowerDB all will be saved to the tree in a folder named Import. You may change this designation by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results for assets will match based on the asset serial number and associate additional results with results already stored in the database.

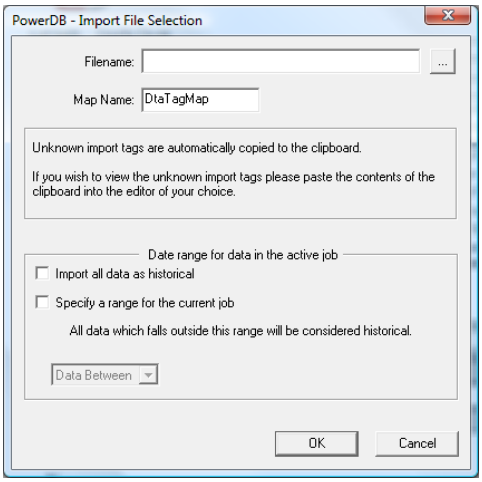
4.9.3.3 Oncor Data


PowerDB - Import File Selection
Filename:
K:\oncore maybe\A2552T_fluid.csv
...
Map Name:
ONCORtagmap:
Unknown import tags are automatically coped to the clipboard.
If you wish to view the unknown import tags please paste the contents of the clipboard into the editor of your choice.
Date range for data in the active job
Import all data as historical
Specify a range for the current job
All data which falls outside this range will be considered historical.
Between
2/16/2008
&
2/10/2009
OK
Cancel

Click on the Browse button and select the data file to import. Complete the date range selections and click the Import button. PowerDB will automatically add the required number of test forms based on the number of results sets contained in the data file. Header and results data will be populated to each test form. Job tree hierarchy such as Substation and Position are not part of the data file. The first time results are imported into PowerDB all will be saved to the tree in a folder named Import. You may change this designation by renaming the Import folder, moving the assets in the Asset Tree or by opening the results sets and entering the appropriate asset location in the form header fields. Subsequent imports of results

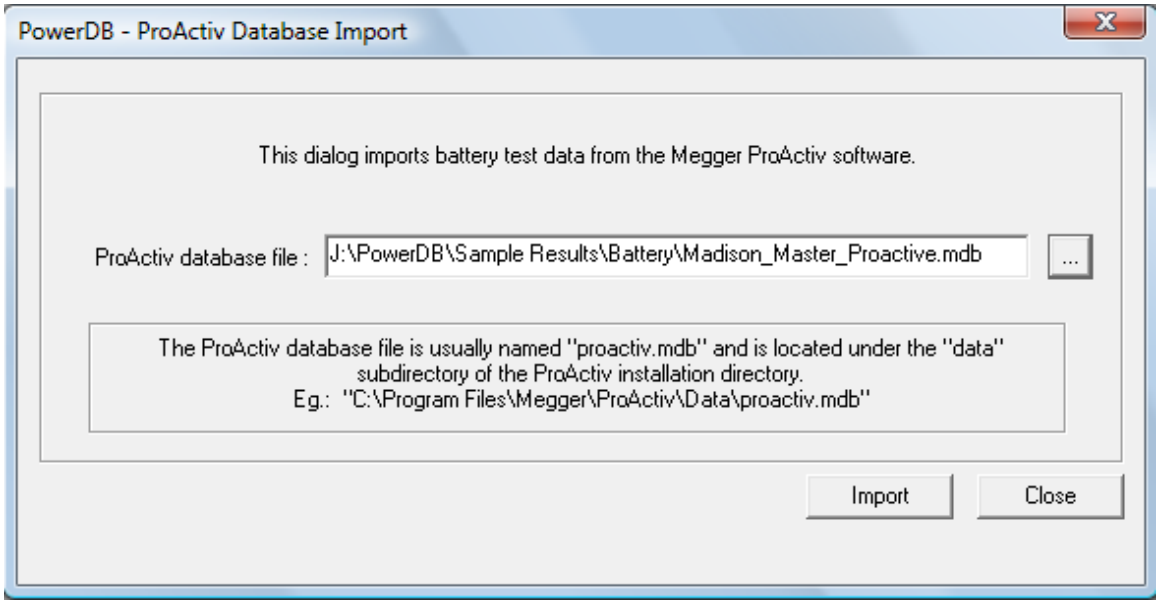
for assets will match based on the asset serial number and associate additional results with results already stored in the database.

4.9.4 Doble DTA


PowerDB - Import File Selection
Filename:
...
Map Name:
DtaTagMap
Unknown import tags are automatically copied to the clipboard.
If you wish to view the unknown import tags please paste the contents of the clipboard into the editor of your choice.
Date range for data in the active job
Import all data as historical
Specify a range for the current job
All data which falls outside this range will be considered historical.
Data Between
OK
Cancel

To import Doble DTA results into PowerDB you must first open the appropriate test form in the job. From the File menu select Import > Import Doble DTA 5.0 data. Browse to the DTA data file, specify your date range selections and click the OK button. All specified results sets for the asset will be imported.

4.9.5 ProActiv


PowerDB - ProActiv Database Import
This dialog imports battery test data from the Megger ProActiv software.
ProActiv database file :
J:\PowerDB\Sample Results\Battery\Madison_Master_Proactive.mdb
...
The ProActiv database file is usually named "proactiv.mdb" and is located under the "data" subdirectory of the ProActiv installation directory.
Eg.: "C:\Program Files\Megger\ProActiv\Data\proactiv.mdb"
Import
Close

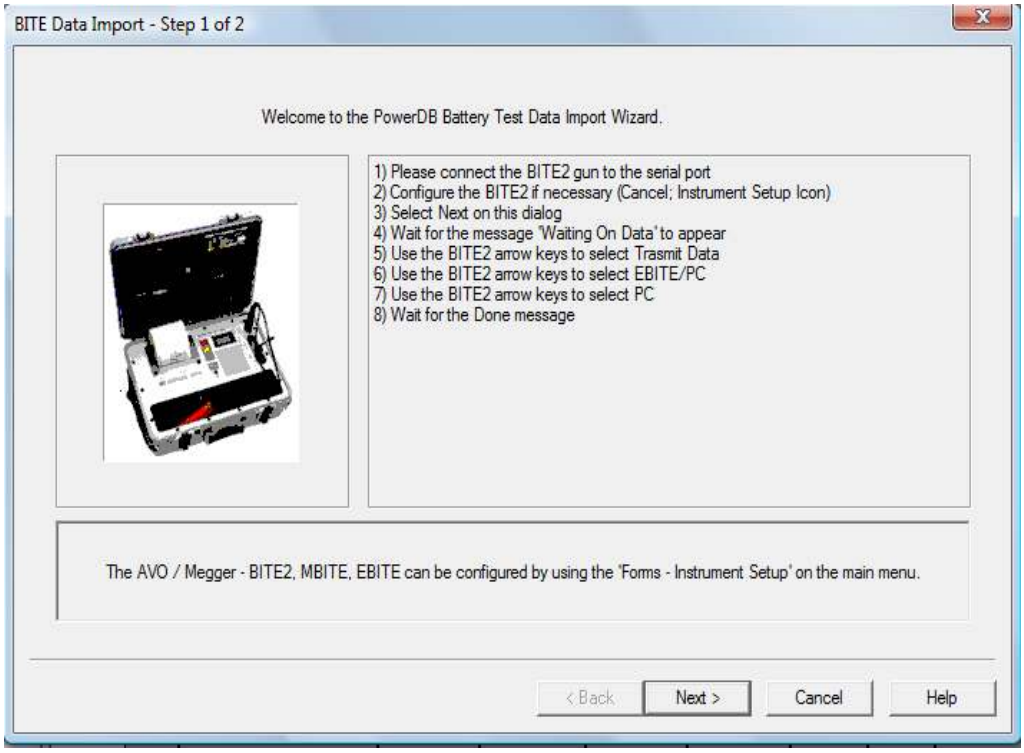
PowerDB is designed to be a replacement for ProActiv. The intended interface between these two software applications is to capture all results from ProActiv, import these results into PowerDB and then to stop using ProActiv going forward. To import ProActiv results into PowerDB you must first import the ProActiv database into PowerDB. This import should be done only once. To launch the ProActiv import, do not start with any job selected but instead start in the Job List. From the File menu select Import > Import ProActiv Data. Browse to the ProActiv file and click Import. The imported ProActiv data can be viewed in the Asset Tree. You may relocate results in the Asset Tree from the right-click menu 'Move Assets' option. You may also associate results with a Job by stepping through the Add to Job wizard and selecting the folder names associated with the ProActiv results.

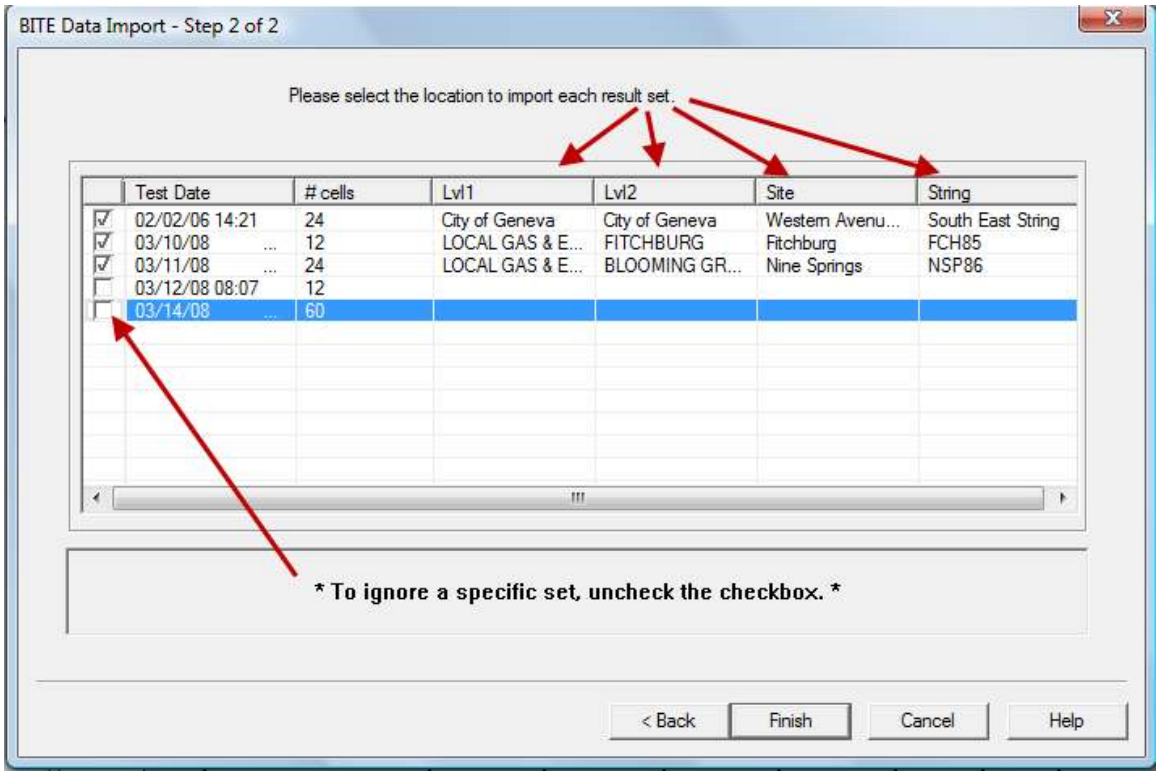
After the ProActiv database is imported once, new battery test results gathered with the Megger Bite 2 or Bite 3 should be brought into PowerDB following steps described in Sections 4.9.6 and 4.9.7.

4.9.6 BITE 2, MBITE and EBITE

Open the Job in PowerDB you want to bring your test results into. Add form 10750 to the Job at the desired Position. Step through the Instrument Setup procedures described in Section 4.10 specifying the Battery Tester and model identified above. There are two methods to load BITE 2 data into PowerDB.

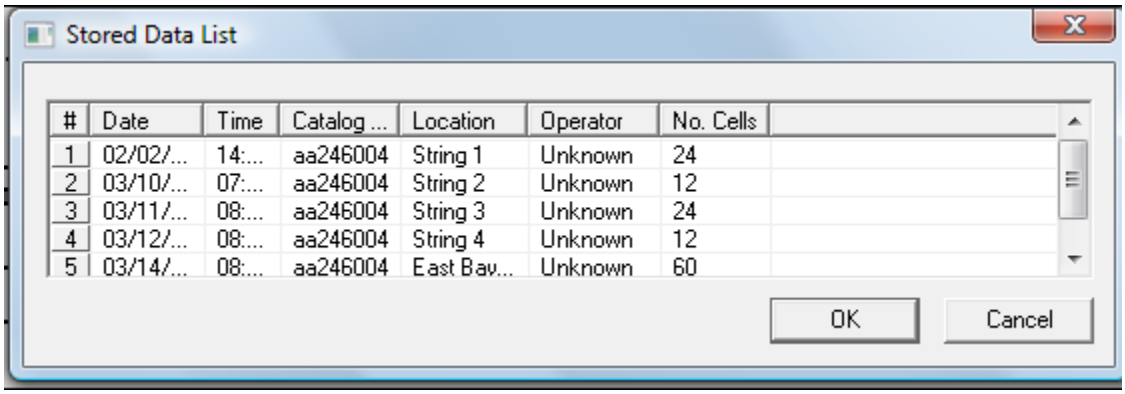
Method 1: From the file menu select Import > Import BITE Battery Data. This will trigger the BITE Data Import Wizard.


BITE Data Import - Step 1 of 2
Welcome to the PowerDB Battery Test Data Import Wizard.
1) Please connect the BITE2 gun to the serial port
2) Configure the BITE2 if necessary (Cancel; Instrument Setup Icon)
3) Select Next on this dialog
4) Wait for the message 'Waiting On Data' to appear
5) Use the BITE2 arrow keys to select Trasmit Data
6) Use the BITE2 arrow keys to select EBITE/PC
7) Use the BITE2 arrow keys to select PC
8) Wait for the Done message
The AVO / Megger - BITE2, MBITE, EBITE can be configured by using the 'Forms - Instrument Setup' on the main menu.
< Back
Next >
Cancel
Help



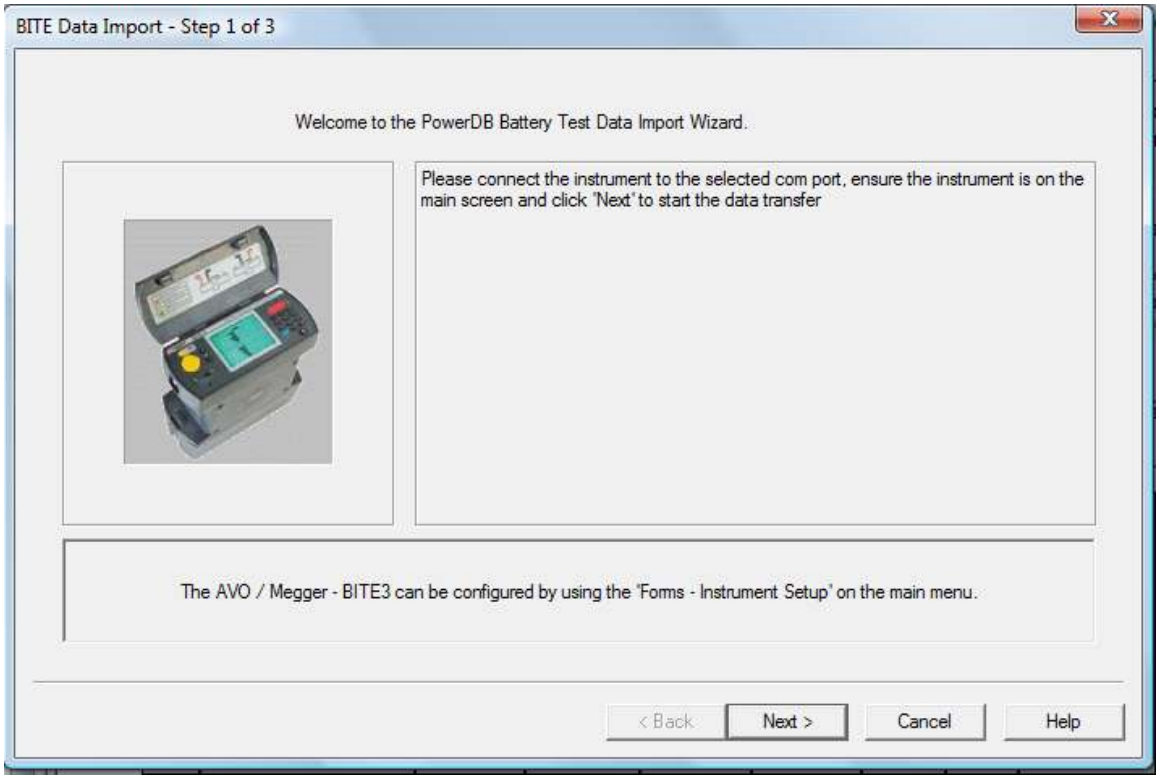
Method 2: To load result sets individually you may add and open form 10750 in a job at the desired location. From the right-click menu on the test form select

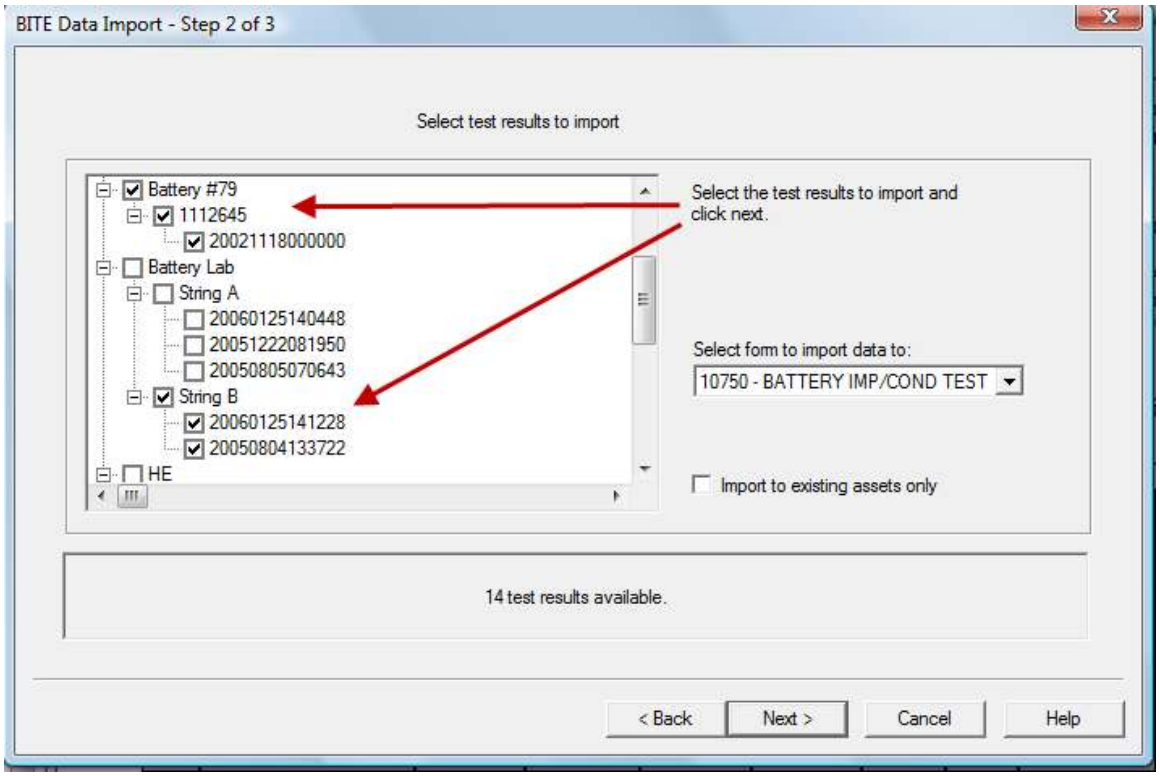
'Load BITE II Data'. Select the appropriate file from the Stored Data List dialog and click OK.

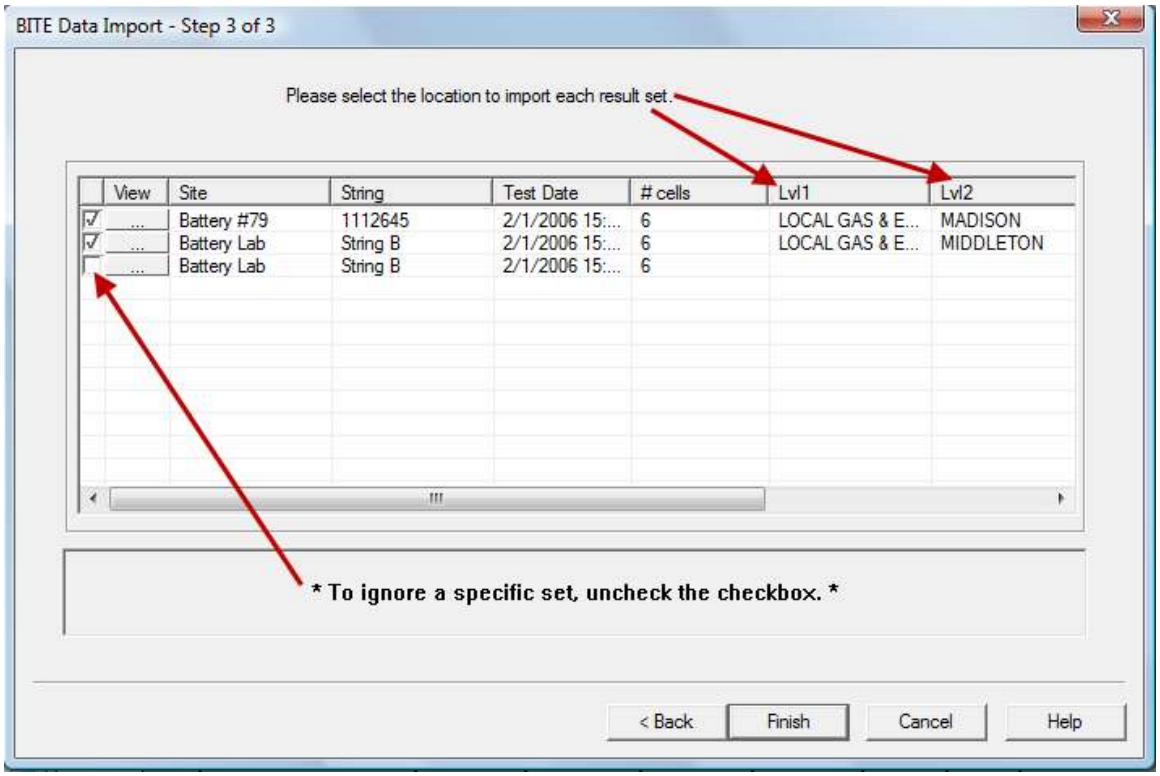

Stored Data List
Date Time Catalog ... Location Operator No. Cells
1 02/02/... 14:... aa246004 String 1 Unknown 24
2 03/10/... 07:... aa246004 String 2 Unknown 12
3 03/11/... 08:... aa246004 String 3 Unknown 24
4 03/12/... 08:... aa246004 String 4 Unknown 12
5 03/14/... 08:... aa246004 East Bay... Unknown 60
OK
Cancel

4.9.7 BITE3

Open the Job in PowerDB you want to bring your test results into. Tree levels or forms do not need to be created in the job using the Add To Job Wizard. These will be handled via the import process. Step through the Instrument Setup procedures described in Section 4.7 specifying the Battery Tester and model identified above. From the file menu select Import > Import BITE Battery Data. This will trigger the BITE Data Import Wizard.

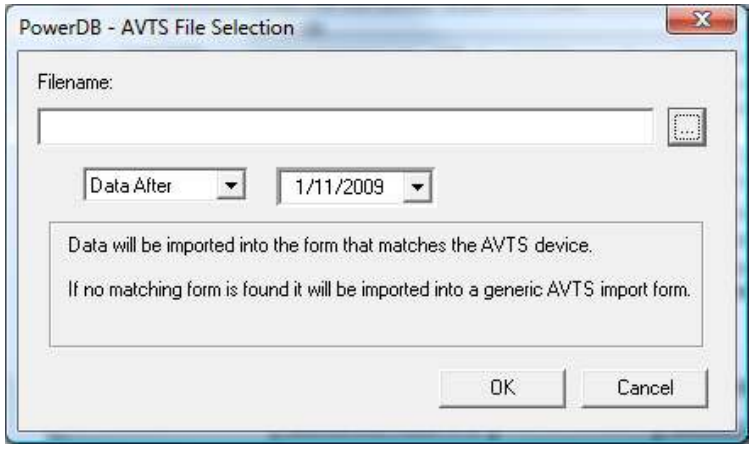

BITE Data Import - Step 1 of 3
Welcome to the PowerDB Battery Test Data Import Wizard.
Please connect the instrument to the selected com port, ensure the instrument is on the main screen and click 'Next' to start the data transfer
The AVO / Megger - BITE3 can be configured by using the 'Forms - Instrument Setup' on the main menu.
< Back
Next >
Cancel
Help





In Step 3 of the wizard you may need to scroll to the right to complete all location selections.

4.9.8 AVTS


PowerDB - AVTS File Selection
Filename:
Data After
1/11/2009
Data will be imported into the form that matches the AVTS device.
If no matching form is found it will be imported into a generic AVTS import form.
OK
Cancel

To import AVTS data simply have the job open that you wish to import the results into. From the File menu select Import > Import AVTS Data. Browse to select the appropriate AVTS database file. You may filter results by date. If results for multiple users are in a single database you may create a holding Job to import results into and then move results to the appropriate Job(s). Subsequent AVTS imports to PowerDB will match results based on the asset name and folder level names from the AVTS database.

4.10. Data Acquisition from Test Instruments

PowerDB interfaces with a variety of test instruments.

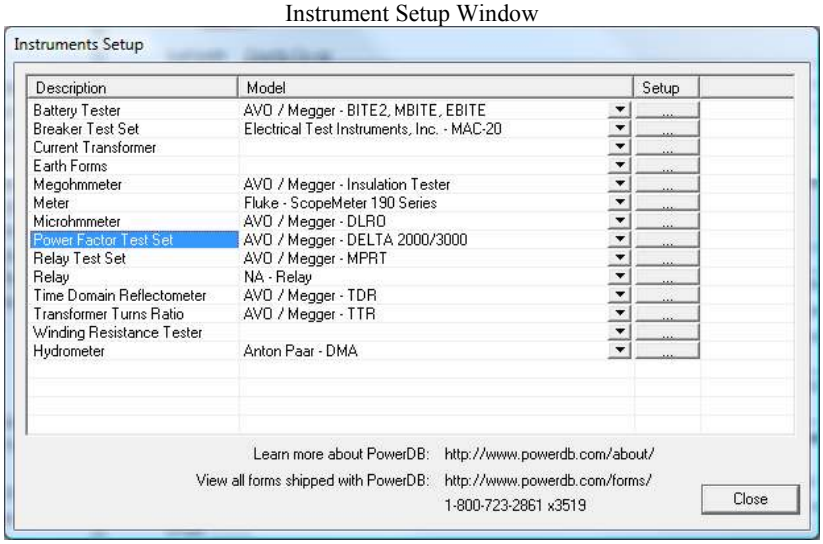
1) Open the appropriate form in a PowerDB Job. Connect your PC to the test instrument following instructions provided in your instrument instruction manual.
2) Click on the Instrument Setup icon in the toolbar, hit the F3 key, or select Forms > Instrument Setup from the menu.

.

Instrument Setup Button

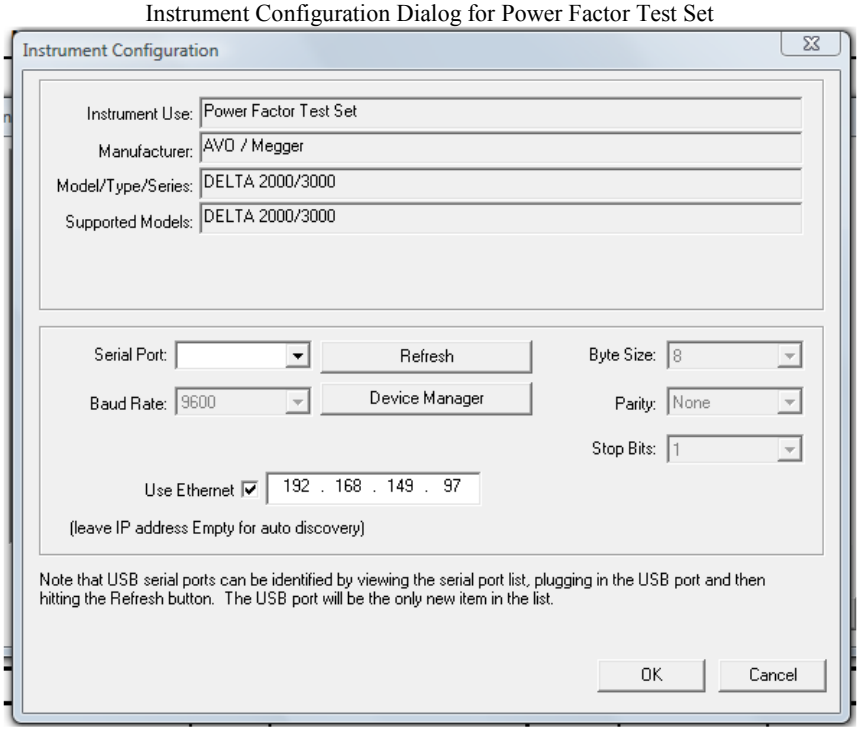
3) In the Instruments Setup window, select the appropriate test set and model.

Instrument Setup Window



4) Click on the gray Setup button to view the Instrument Configuration dialog. Review the instrument model and if necessary select the specific model of instrument using the dropdown list.

Instrument Configuration Dialog for Power Factor Test Set


Instrument Configuration
Instrument Use: Power Factor Test Set
Manufacturer: AVO / Megger
Model/Type/Series: DELTA 2000/3000
Supported Models: DELTA 2000/3000
Serial Port:
Refresh
Byte Size: 8
Baud Rate: 9600
Device Manager
Parity: None
Stop Bits: 1
Use Ethernet
192 . 168 . 149 . 97
(leave IP address Empty for auto discovery)
Note that USB serial ports can be identified by viewing the serial port list, plugging in the USB port and then hitting the Refresh button. The USB port will be the only new item in the list.
OK
Cancel

5) Select the Serial Port from the dropdown list. If you do not know which port to select, you can locate it in the Device Manager by viewing Ports (COM &

LPT). If you are using a USB serial adapter you can find the port number simply by following these instructions:

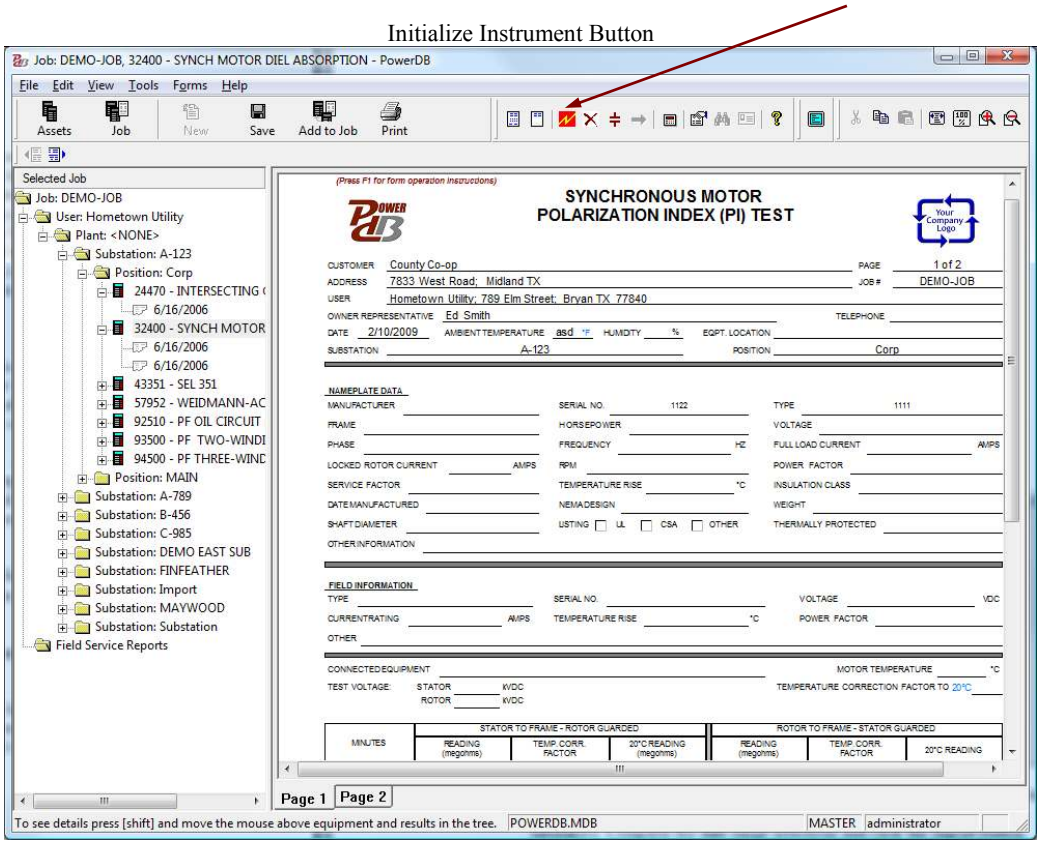
a. Unplug the USB adapter.
b. Click on the Refresh button.
c. View the available ports on the dropdown list.
d. Plug the USB adapter back in.
e. Click on the Refresh button.
f. View the available ports on the list and choose the port number not originally shown in Step c above.

6) NOTE: Some test instruments, such as the Megger S1 Series Megohmmeters, may require the installation of USB driver files. Review the documentation provided with the test instrument for these instructions.

7) Click OK to save the settings, and Close the Instrument Configuration window.

After settings designations are completed click on the Initialize Instrument icon .

Initialize Instrument Button


Job: DEMO-JOB, 32400 - SYNCH MOTOR DIEL ABSORPTION - PowerDB
File Edit View Tools Forms Help
Assets Job New Save Add to Job Print
SYNCHRONOUS MOTOR
POLARIZATION INDEX (PI) TEST
Page 1 Page 2
To see details press [shift] and move the mouse above equipment and results in the tree.
POWERDB.MDB
MASTER
administrator

8) Your communication will be confirmed. The automated test locations will now turn a cyan color. Selection of these fields will control where the test data will be placed in the form. If the test row number is cyan the data will be

placed in that row location. If the column heading is cyan the data will be placed in that column.

MINUTES	WINDING 1 TO FRAME - MEGOHMS			WINDING 2 T
	READING (meghoms)	TEMP. CORR. FACTOR	20°C READING (megohms)	READING (megohms)	TE
0.25					
0.50					
0.75					
1.00					
1.25					
1.50					
1.75					
2.00					

TEST NO	INSULATION TESTED	TEST MODE	TEST LEAD CONFIGURATION				TEST kV	CAPACITANCE C (pF)	
			ENG	GND	GAR	UST			MEAS
1	$C_{HG} + C_{HL}$	GST GND	H	L					
2	C_{HG}	GST	H		L				
3	C_{HL}	UST	H			L			
4	C_{HL}'		TEST 1 MINUS TEST 2						
5	$C_{LG} + C_{HL}$	GST GND	L	H					
6	C_{LG}	GST	L		H				
7	C_{HL}	UST	L			H			
8	C_{HL}'		TEST 5 MINUS TEST 6						

9) Right click directly on the cyan colored field. Depending on the model of instrument, testing may immediately commence or you may see a sub-menu allowing you to *Run Test* or *Load Data From Instrument*.
10) Follow any instructions that appear on the screen. At the conclusion of a new test, the results will populate directly onto the form.
11) If you select to *Load Data From Instrument*, previously stored test results will appear in a pop-up table, allowing you to select the desired test result to populate into the form. When loading additional results into the same form from instrument memory, it is only necessary to Reload data if new results were added to the instrument.

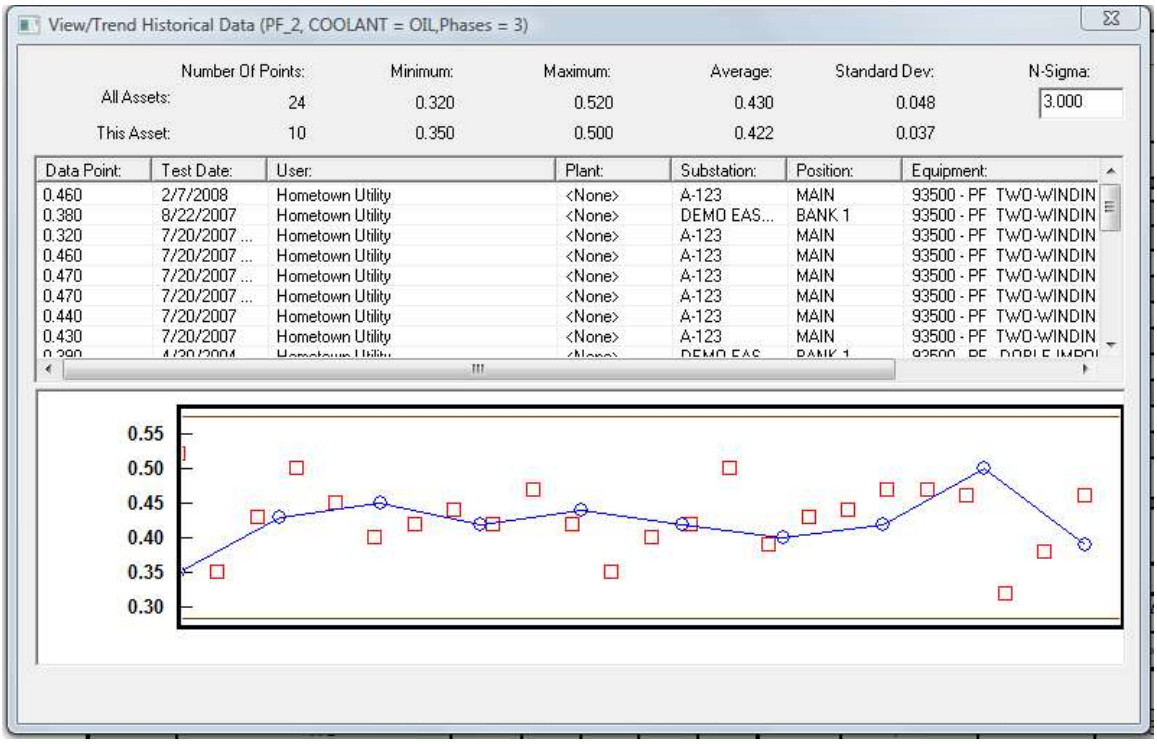
4.11. Right-Click Trending

Right-clicking on any data field displays the View/Trend Historical Data dialog. This dialog graphically displays all of the historical values of the asset for the selected field in blue connected by a blue line. PowerDB also displays in red the test results for the selected field of all assets that have the same nameplate information.

You may define your filters for right-click trending. From the right-click menu select Define Trend Comparison Filter. Shift-click all fields to be used as trend comparison filters. Right click on the View/Trend Historical Data item. Define your filter parameters. You may set this as a default or save your selections as a Favorite.

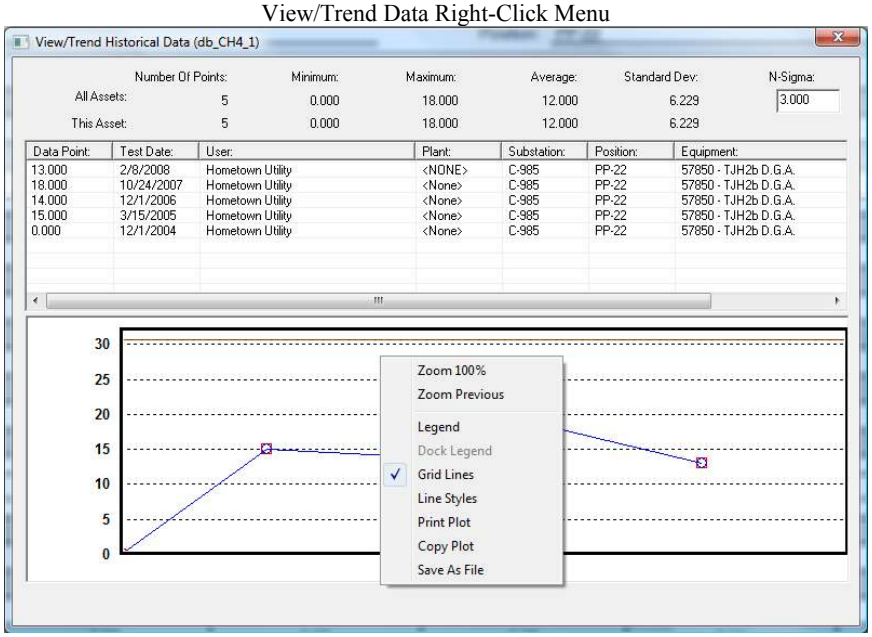
The top portion of this dialog displays the statistical information including the value for the current asset and for all similar assets. A N-Sigma edit field is provided in the upper right corner. The value in this field determines the position of the control limit lines in the graph. If this number is 3, a line will be drawn at the average value plus three times the standard deviation and at the average value minus three times the standard deviation.

View/Trend Historical Data Window



You may select ‘Legend’ from the right-click menu to further customize your view as to All Data, This Device, High or Low, Grid Line and Line Style. PowerDB also allows you to print, copy/paste and save trend chart files from the right-click menu. You may click in the chart area of the screen and capture the plot image and paste it into a report form such as Form 55555 – Trending.

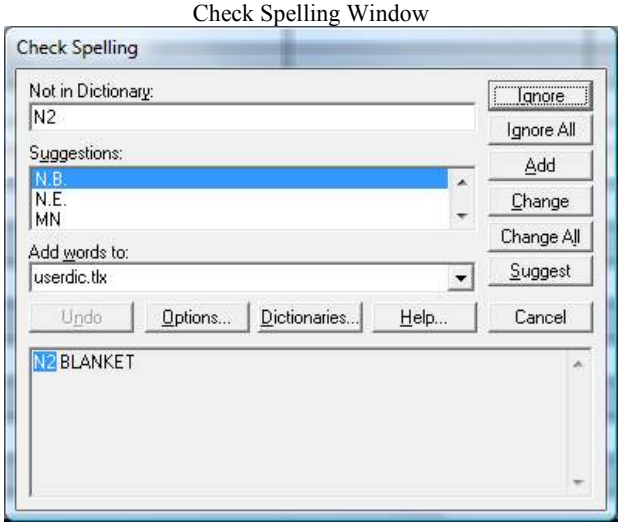
View/Trend Data Right-Click Menu



4.12. Check Spelling

PowerDB provides a Check Spelling feature for text entry fields in the Jobs portion of PowerDB. With the cursor in a text entry field, hit F7 or select Forms and then select Check Spelling. This will check spelling for only the selected text input field. To check spelling in all text input fields, with the cursor on a blank portion of the test form, hit F7 or select Forms and then select Check Spelling.

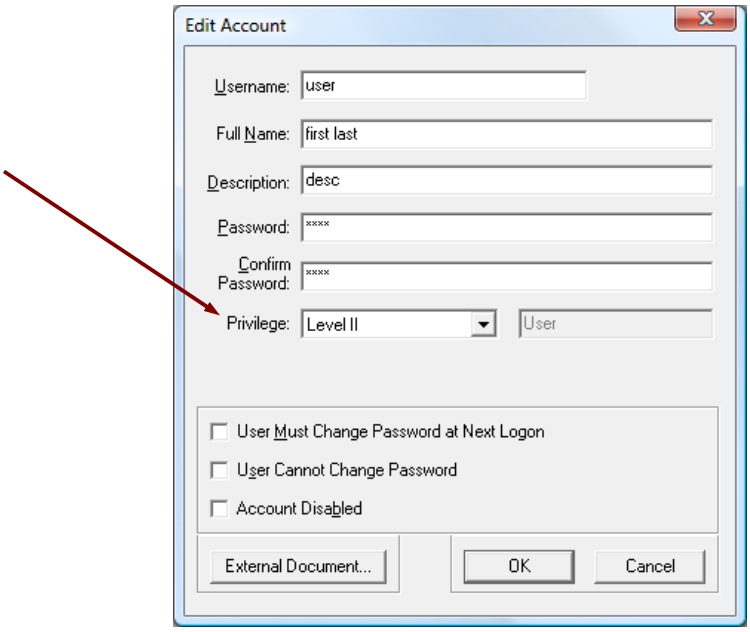
Check Spelling Window



4.13. Provide Results Database to Users

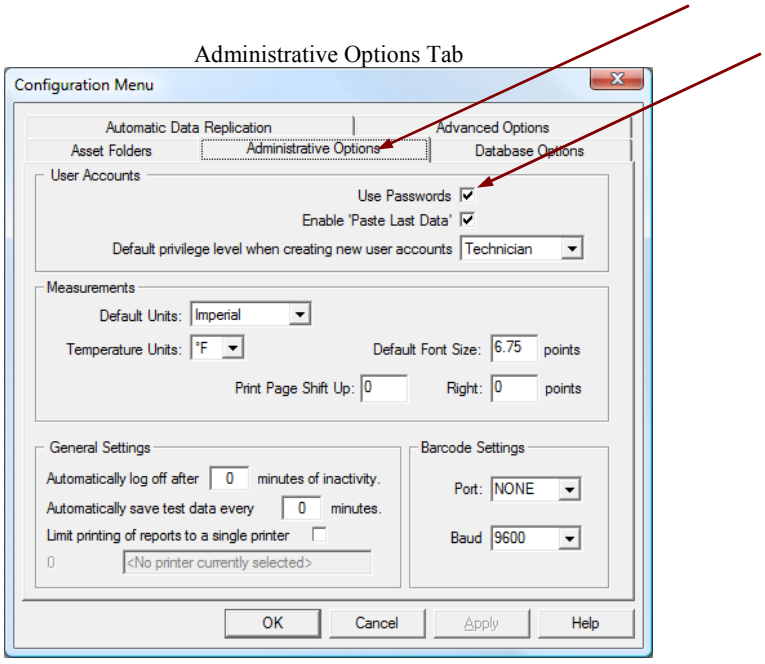
If you use passwords to access your database you will need to provide a password to your user or customer. You may set up a password for your customer at View >User Accounts > New and complete the Edit Account dialog box. Select Privilege Level II (User) for this new account. Be sure to provide the username and password to your customer. When you are finished, click OK.

Edit Account Window



- Make sure that passwords are enabled. To enable passwords, go to Tools >Administration. Click the Administrative Options tab and select the use Passwords checkbox located in the User Accounts subsection.

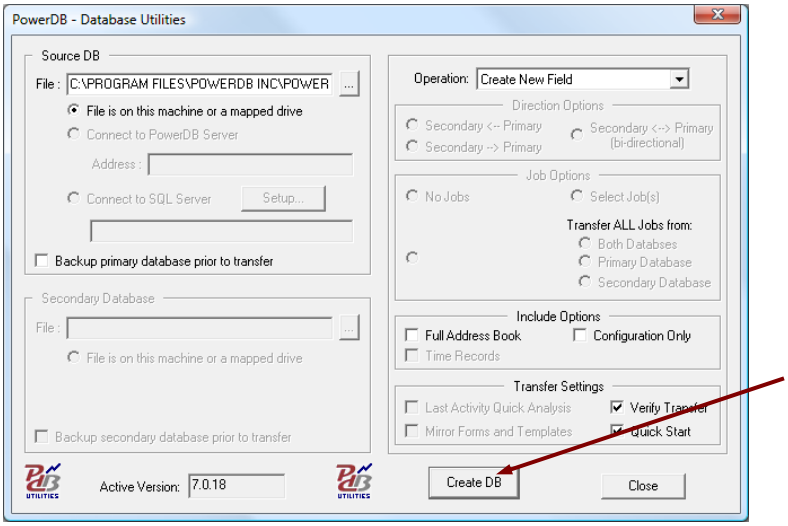
Administrative Options Tab



- While in your master database you need to create a database to populate with your customer's Job Results. Go to File > New Database > New Field DB. When the Database Utilities window opens, click the Create DB button to create the new field

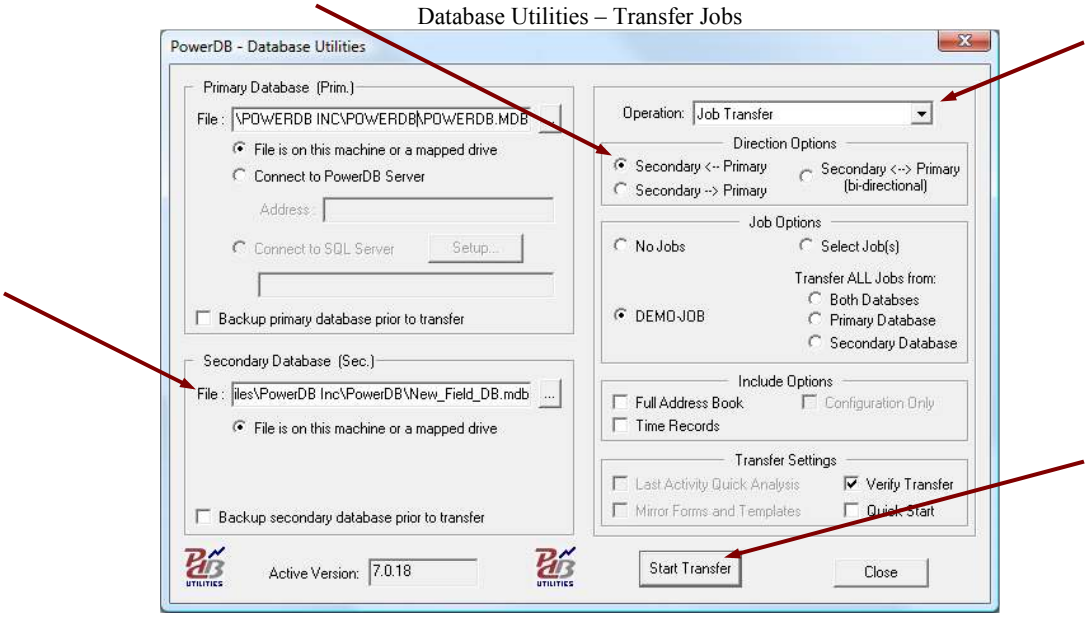
database. You may rename the database as required. Click the Finish button when it is done.

Database Utilities – Create New Field DB



- To transfer your customer's Job Results to the newly created field database go to the Job List. Select the Job, right click and select Synchronize Data. Verify that the secondary database is the newly created field database. The operation should be set to 'Job Transfer'. For the Direction Option select Secondary <- Primary ONLY. Select the other fields as appropriate NOT to include Full Address Book. Click the Start Transfer button. Click Finish when it is done transferring data.

Database Utilities – Transfer Jobs



- To verify that the information in the field database is complete go to File > Change Database and browse to the customer's field database. Click OK. PowerDB will restart in this database. View the Job List and results in this database for

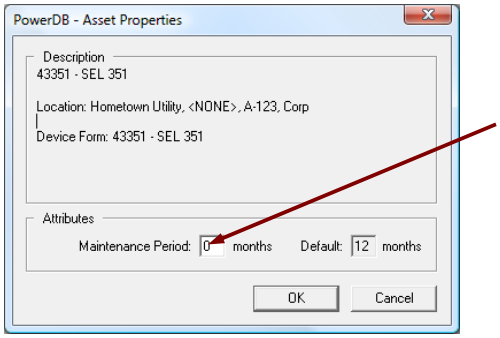
completeness. You may also want to set up the results sort ordering to facilitate the printing function for your customer.

- Create a zip file or CD of this database and provide it to your customer.

Your customer will need to install PowerDB on their system to view your data. You may copy your current installation CD (PowerDB will only function as a Reader Version without a valid license), or your customer may download a Reader Version from our web site at www.powerdb.com

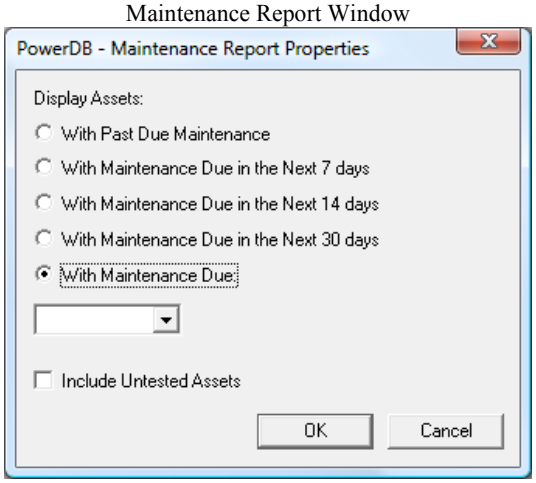
4.14. Maintenance Reporting

You may define a maintenance interval for assets and print related reports. To define a default maintenance interval for forms select a form in the Form Tree and then select Properties from the right click menu. Enter a maintenance period interval in the edit field; a value of zero will not generate any maintenance report results for this form. To override the default maintenance interval defined in the Form Tree for a particular asset edit the maintenance period attribute in the right click Properties menu in the Job or Asset Tree.



To print Maintenance Reports for assets select Maintenance Report from the Job or Asset Tree right click menu. Select the assets to print based on maintenance report due dates and then click OK.

Maintenance Report Window


PowerDB - Maintenance Report Properties
Display Assets:
With Past Due Maintenance
With Maintenance Due in the Next 7 days
With Maintenance Due in the Next 14 days
With Maintenance Due in the Next 30 days
With Maintenance Due:
Include Untested Assets
OK
Cancel

4.15. External Documents

PowerDB allows a user to associate an external document or attachment with information in PowerDB. Documents will be viewable but will not be printed as part of test results. An external document saved to PowerDB can be edited without affecting the source file. The relationship between the external document and the application is as follows.

- Form – An external document added in the Form Tree will be viewable from the Form Tree or the Job Tree.
- Asset – An external document added in the Asset Tree is viewable from the Asset Tree or the Job Tree.
- User Account – An external document added to a User Account will be viewable from the user account properties.
- Asset in a Job – An external document added in the Job tree is viewable from the Job Tree.
- Results – An external document added for a set of test results is viewable from the Asset Tree and the Job Tree.
- Job Properties – An external document added under the General tab in Job Properties is viewable from the Job Properties dialog box.

4.16. Comments and Deficiencies

Most data forms provided with PowerDB include a Comments & Deficiencies sub-form. These fields allow users to enter notations regarding test results. Entries made in these fields will automatically be reported in the Comment & Deficiency Summary Reports available at printing. Under the Data tab of the User Data Sub-Form you may build a file of default text entries, which you may add to the test results from a Right-Click option.

Deficiency Summary
Job #:2001-0633

PAGE 1 of 1

Customer Electrical Testing Company
User Woodlawn Hospital
Plant Woodlawn Hospital

Substation: M Position: M3 MCC-E201
Equipment: 15000 - LOW VOLT. PWR. CKT. BKR. TEST Test Date and Time: 3/12/2002 2:46:26 PM

GROUND FAULT FUNCTION DEFECTIVE

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Substation: M Position: MAIN
Equipment: 15000 - LOW VOLT. PWR. CKT. BKR. TES (2) Test Date and Time: 8/7/2002 9:30:17 AM

THE BREAKER INTERMITTENTLY WOULD NOT CHARGE PROPERLY. INCIDENT OCCURED TWICE. RACKING THE BREAKER OUT AND BACK WOULD CORRECT THE PROBLEM. BREAKER CLOSING ON CHARGING CYCLE.

Page 135

Substation: NA Position: ELEVATOR DIST. PNL.
Equipment: 15600 - FUSE DISCONNECTED INSP. TEST Test Date and Time: 5/14/2002 9:31:32 AM

*** CONTACT RESISTANCE OUT OF TOLERANCE PER NETA SPECIFICATIONS. SWITCH IS DEFECTIVE.

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4.17. Regions

You may set up Regions for your Job List and Address Book at Tools > Administration > Database Options. Jobs are assigned to a Region through Job Properties. Addresses are assigned to a Region in the address book.

4.18. Intelligent Import

PowerDB now allows you to select the “Intelligent Import” option when importing forms into the Form Editor. This automatically uses the most recent sub-forms when they begin with "INST_" and automatically ignores the following sub-forms:

- Logo 1
- Logo 2
- Header
- Header - Basic Info
- Header - Title
- Header - PageNum
- Header
- Footer
- Footer - Common
- Comments
- Divider

4.19. Submit Files

PowerDB now allows you to easily submit copies of your database, log files and related external files to PowerDB Technical Support if problems are encountered. Go to Help > Submit Files.

4.20. Completed Job Lock

A manager or administrator can flag a job as 'Completed'. Data cannot be changed in a completed job. Only an administrator can set or release the Completed Job flag. To complete a job select the job in the job list, and from the right-click menu select 'Completed'.

4.21. Log Files

PowerDB log files for Windows XP users are located at
C:\documents and settings\all users\application data\powerdb\logfiles

Windows Vista users must Show Hidden Files at Organize > Folder and Search Options > View. PowerDB log files are at
c:/program data/powerdb/log files

The types of log files are as follows:
Pdb.log – main application log(s)
Pdbsynch.log – data utilities log (synchronization)
Pdbsynch-serv.log – synch server logs
PdbAuto.log – logs from automated synch runs
<log name>_oldX – historical log files where X is an increasing number
(higher X = older log)

4.22. Web Server

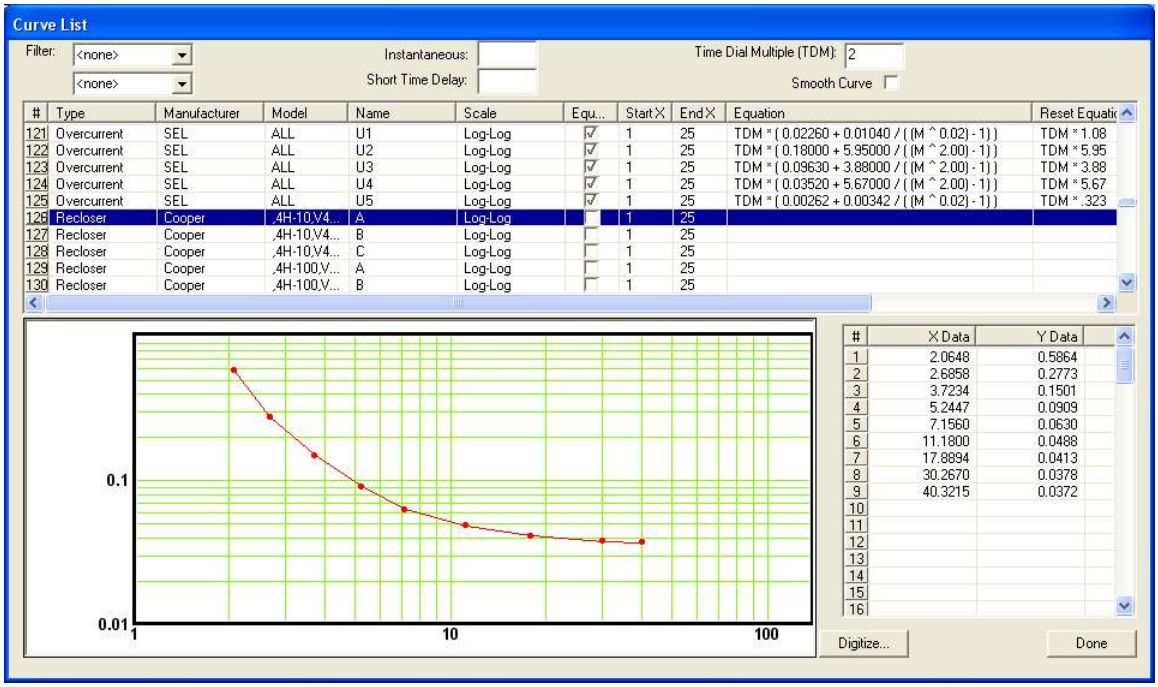
The PowerDB Web Server option allows you deliver job documentation to your clients via your Microsoft IIS Web Server. The entry screen for the PowerDB Web Server may also be used to deliver information promoting your company's services.

Your clients log into the PowerDB Web Server by providing a username and password. They are then able to view each of their jobs, while other clients' jobs are hidden from view. Job assets are presented in a tree hierarchy similar to how they are presented in PowerDB. Test reports of recent or historical data for any asset can be viewed individually. The PowerDB Web Server also allows you to deliver any other electronic documents that you submit for a job, such as a job-documentation package.

4.23. Curve Library

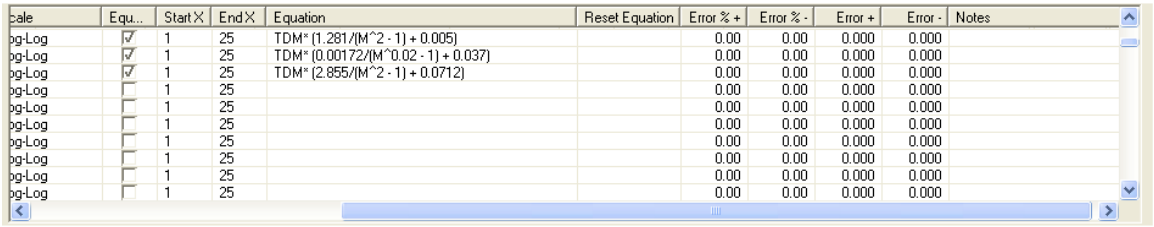
The Curve Library is used to enter and store device Time Current Characteristic (TCC) curves. It can be used when testing protective relays, low voltage circuit breakers, circuit reclosers or any other device that is tested using applied current and measured time.

The Curve Library is displayed by selecting View, Curve Library from the top menu. The window that appears shows a listing of TCC curves that have previously been entered.


Curve List
Filter:
<none>
<none>
Instantaneous:
Short Time Delay:
Time Dial Multiple (TDM):
2
Smooth Curve
Type Manufacturer Model Name Scale Equ... Start X End X Equation Reset Equatic
121 Overcurrent SEL ALL U1 Log-Log 1 25 TDM * (0.02260 + 0.01040 / ((M ^ 0.02) - 1)) TDM * 1.08
122 Overcurrent SEL ALL U2 Log-Log 1 25 TDM * (0.18000 + 5.95000 / ((M ^ 2.00) - 1)) TDM * 5.95
123 Overcurrent SEL ALL U3 Log-Log 1 25 TDM * (0.09630 + 3.88000 / ((M ^ 2.00) - 1)) TDM * 3.88
124 Overcurrent SEL ALL U4 Log-Log 1 25 TDM * (0.03520 + 5.67000 / ((M ^ 2.00) - 1)) TDM * 5.67
125 Overcurrent SEL ALL U5 Log-Log 1 25 TDM * (0.00262 + 0.00342 / ((M ^ 0.02) - 1)) TDM * .323
126 Recloser Cooper ,4H-10,V4... A Log-Log 1 25
127 Recloser Cooper ,4H-10,V4... B Log-Log 1 25
128 Recloser Cooper ,4H-10,V4... C Log-Log 1 25
129 Recloser Cooper ,4H-100,V... A Log-Log 1 25
130 Recloser Cooper ,4H-100,V... B Log-Log 1 25
0.1
0.01
1
10
100
X Data Y Data
1 2.0648 0.5864
2 2.6858 0.2773
3 3.7234 0.1501
4 5.2447 0.0909
5 7.1560 0.0630
6 11.1800 0.0488
7 17.8894 0.0413
8 30.2670 0.0378
9 40.3215 0.0372
Digitize...
Done

The listing at the top of the window identifies each curve on a single row, with a viewing window and table of data points shown below. In the curve viewing window, the X axis represents current (in either amperes or multiple of coil size) and the Y axis represents time (in seconds).

As mentioned, each row identifies a curve in the library with its unique characteristics. The fields include *Type*, *Manufacturer*, *Model*, *Name*, *Scale*, *Equation?, Start X*, *End X*, *Equation*, *Reset Equation*, *Error %+*, *Error %-*, *Error +*, *Error –* and *Notes*.



Type – This identifies the type of curve, such as Breaker, Recloser, Overcurrent, Frequency, etc. If a type does not currently exist in the dropdown list it will be added when a new curve is added to the library by simply typing the name into the space provided in that row.
Manufacturer – The name of the device manufacturer. Similar to Type, if a manufacturer does not currently exist in the dropdown list it will be added when a new curve is entered.

Model – The device model, for identification purposes.
Name – This identifies the name of the curve, particularly important when a device model has multiple curves in the library.
Scale – A dropdown list with options of Linear, Polar, Semi-Log X, Semi-Log Y and Log-Log.
Equation – If checked, this signifies that an equation will be used to define the curve.
Start X / End X – These define the starting and stopping points of the curve on the X axis.
Equation – This is the entry field for the equation that will define an equation-based curve.
Reset Equation – 'For future use' This is intended to specify the reset time required after an operation.
Error %+ / Error %- – These are the allowable error limits provided by the manufacturer, if expressed in percent.
Error + / Error - – These are the allowable error limits provided by the manufacturer if expressed in direct values.
Notes – A field for any comments related to a specific curve.

Filter selections at the top of the window provide the capability of viewing only specific curve types and specific manufacturers in the listing.

The Instantaneous, Short Time Delay and Time Dial Multiple (TDM) settings let the user preview the curve with those settings in the viewing window.

Selecting and right clicking on a curve number in the listing presents a menu of options: *Insert*, *Delete*, *Add*, *Find*, *Filter By Selection*, *Import From File*, *Export To File* and *Copy Curve*.

Insert – Adds a new row for entering a new curve into the library at the spot in the table that is highlighted. .
Delete – Erases the curve that is highlighted from the library.
Add – Creates a new row for entering a curve at the bottom of the table.
Find – Opens a text search box for quickly navigating through the list to a desired curve.
Filter By Selection – If the right click action was performed directly over a field, the listing will be filtered according to the value or data in that field.
Cancel Filter By Selection – Cancels the action of a previous *Filter By Selection*. This option only appears in the menu if a filter action is currently in effect.
Import From File – This option loads the contents of a .crv file into the curve library. Existing curves will be overwritten.
Export To File – This option creates a .crv file consisting of the entire contents of the curve library.

Copy Curve – Creates a duplicate of the highlighted curve. Once a copy is on the clipboard, a new row must be created. The right click menu now contains an item *Paste Curve* which is used on the empty row to paste a copy of the original curve.

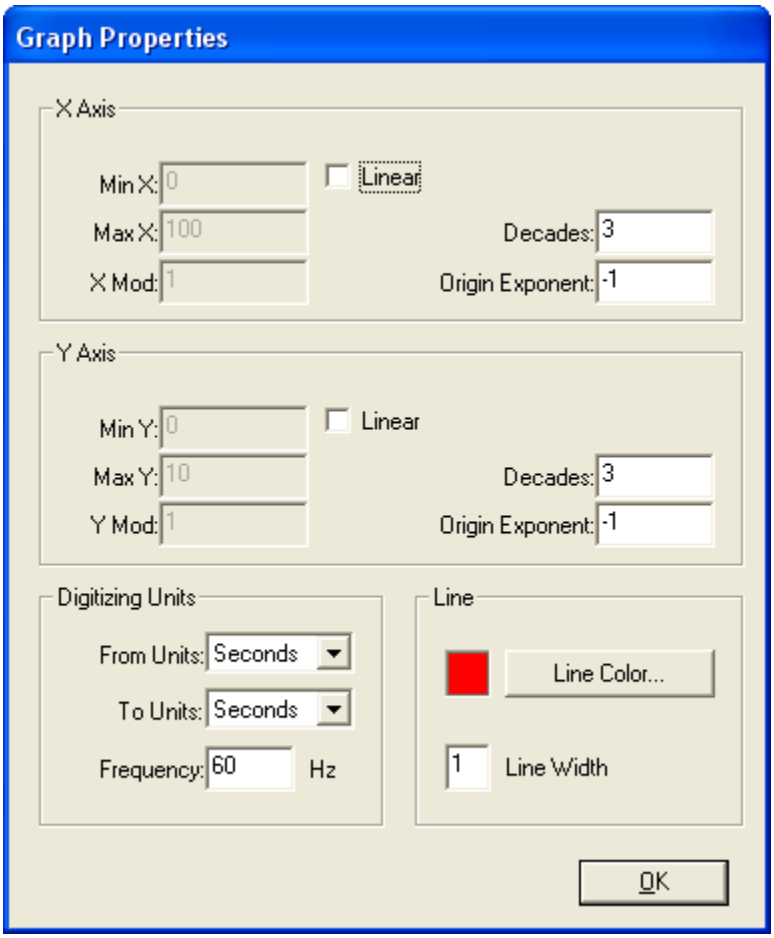
TCC curves can be entered into the database in several ways, including:

- X and Y data points
- Equation
- Digitizing bitmap file

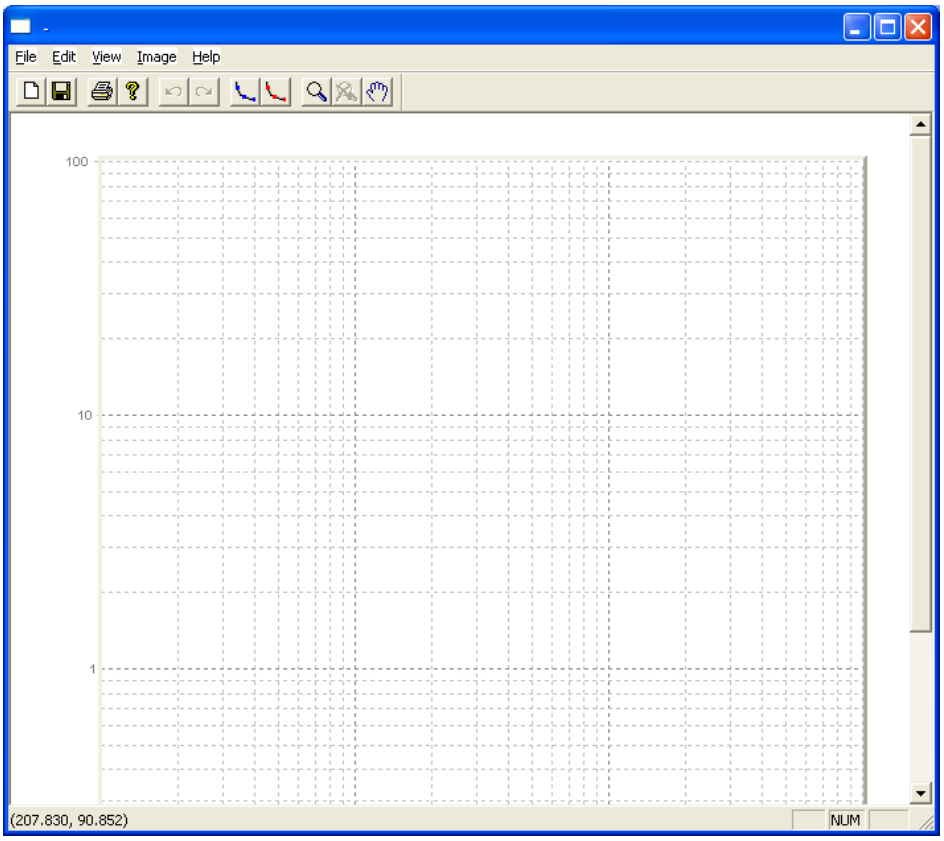
To add a new curve, simply highlight an existing curve, open the right click menu, and select *Insert*, *Add* or *Copy Curve*.

If a curve was copied, the characteristics can be modified as necessary. Once changes are made, click on a different row in the table. A prompt will appear "Do you want to save changes to row *X*?"

If inserting or adding a completely new curve into a new row, enter all identifying information. Enter the curve equation or X:Y data points as desired. If a bitmap is to be digitized, click on the *Digitize* button. A graph properties dialog will appear.

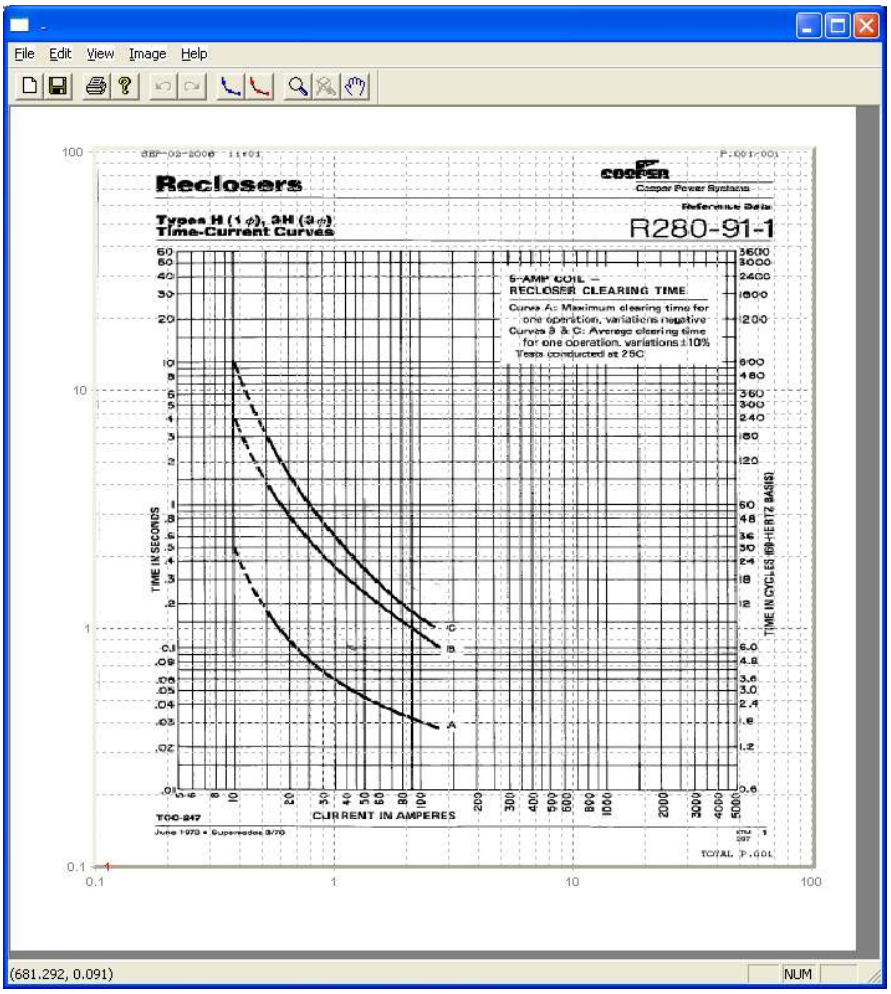


Select OK to proceed to the curve entry screen. At any time, you may return to the Graph Properties dialog to update settings if necessary.

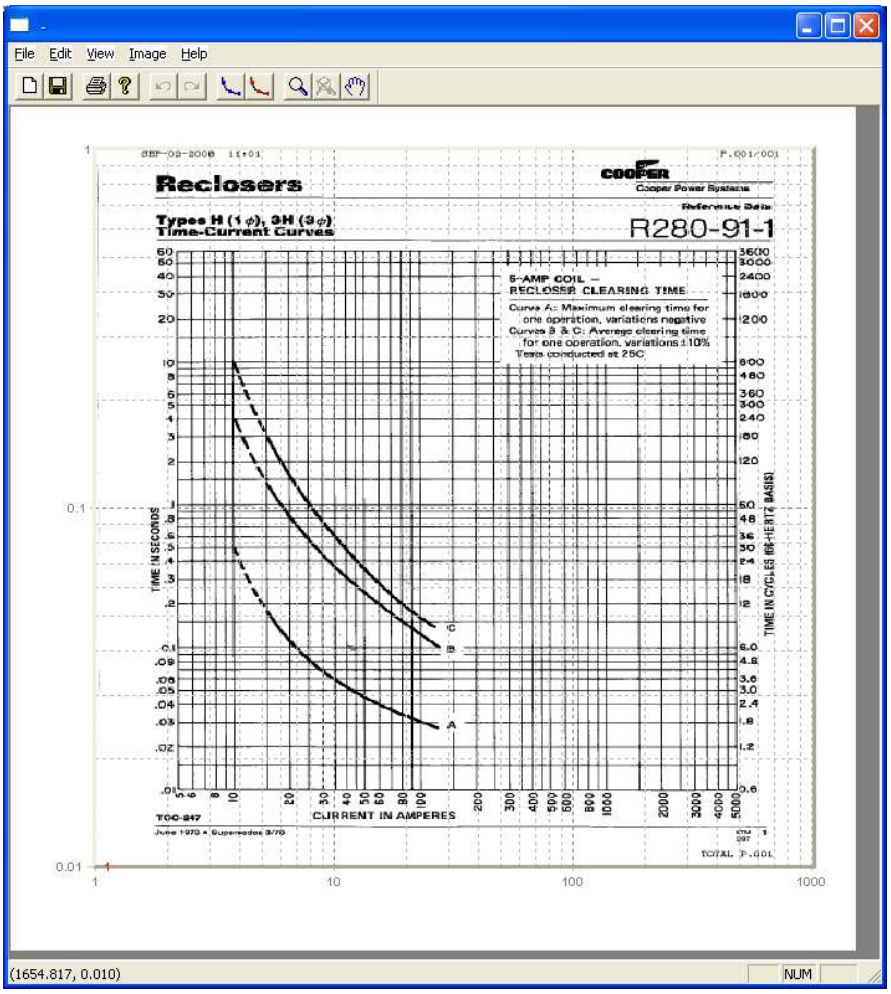


On this screen, a bitmap of a curve can be superimposed which aids in digitizing a curve and adding it to the library.

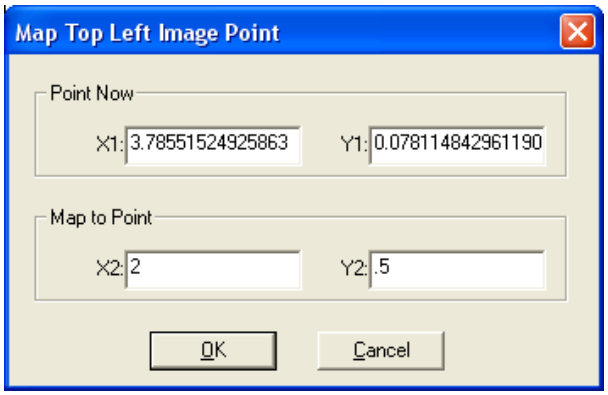
Select Image from the menu, then select Insert Background Image from the submenu. Enter the pathname to the bitmap file of the desired curve. Upon opening the bitmap it will now appear on the graph.



At this time, the Graph Properties may be selected and edited again from the Edit menu. This would typically be done to set the appropriate scale of the graph axes. In the case of the example shown where the "A" curve is to be added, the X axis will be adjusted to accommodate multiples of recloser coil rating, and the Y axis will be adjusted for the range of time values associated with the specific curve to be added.

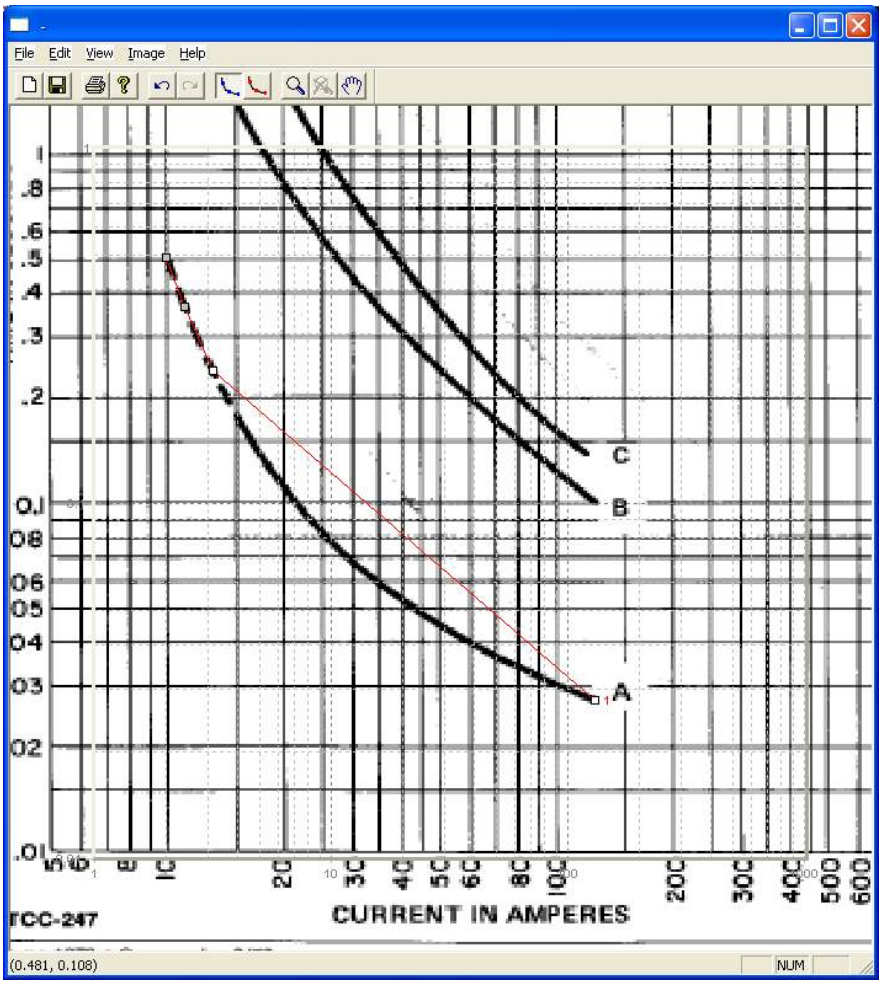


The curve would now be matched to the graph by selecting Image from the menu, then Map Top Left Image Point. A cross-hair cursor appears. Move it to the upper left point of the curve. Click the mouse to select that point, and now a dialog appears for entering the actual coordinates.



The appropriate X and Y coordinates for the top left point of the curve are entered. After selecting OK, the curve now moves to that point on the graph. The same procedure is

used to map the bottom right image point of the curve. The curve endpoints should now match the appropriate coordinates on the graph. The Insert Curve Points button is now selected. Using the cross-hair cursor that appears, the starting and ending points of the curve are selected first, creating a red line that will represent the desired curve. A suitable number of intermediate points should be selected so that the red curve line duplicates the shape of the desired curve.



When finished, save the curve and exit the digitizer. To save the curve details, back at the curve list, select a different curve. This will generate a prompt "Do you want to save your changes to Row X?" Click on Yes or No as desired.

Once a curve has been entered into the library, it can be included on a test form to provide the limits that are used for evaluating test results. Test points measured during testing can be plotted on the same chart for quick visual comparison of actual to desired timing.

To view examples of how a curve is added to a test form and utilized, go to the Form Editor and review one of the following forms:
92600 – OCR, 462700 – CV-1, 465120 – CO-2

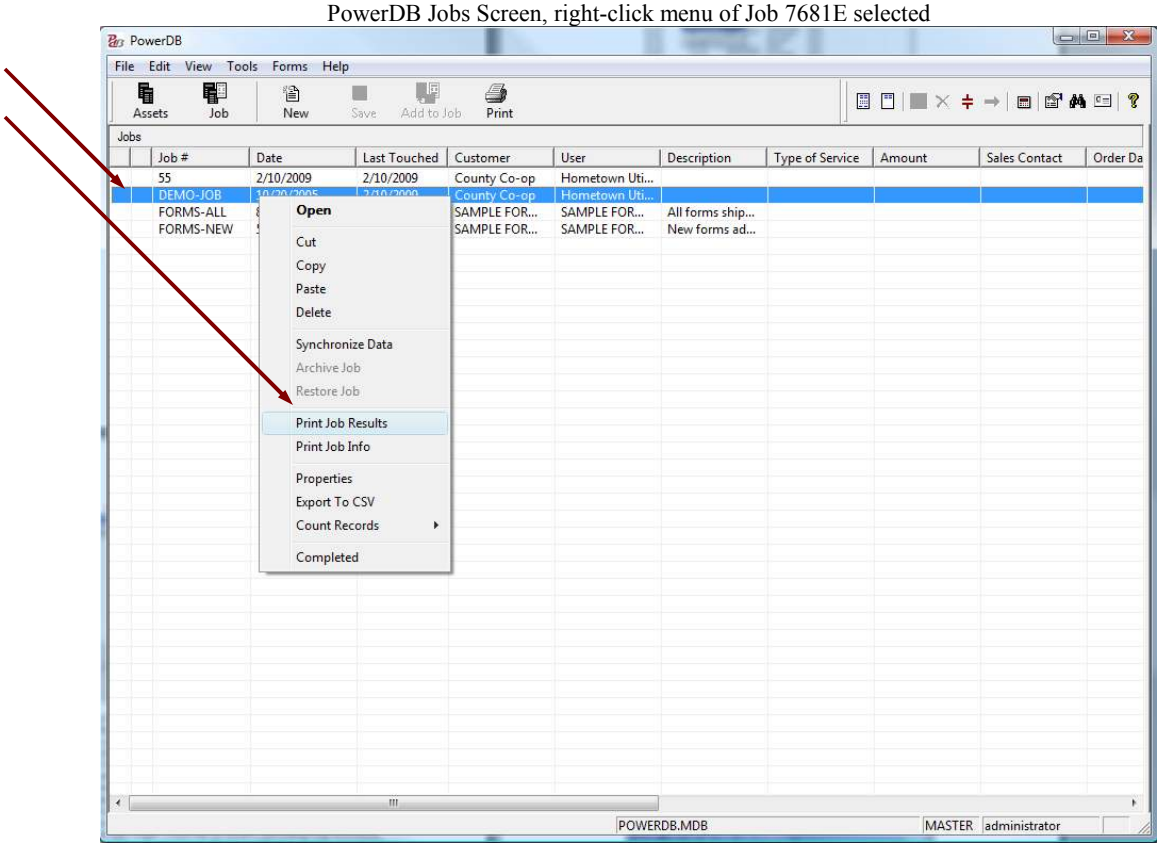
5. Print Job Reports

5.1. Print a Job

This guide shows examples of how to set up a print job.

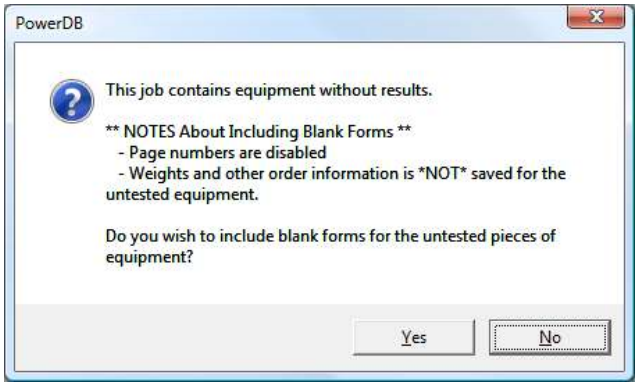
1) From the PowerDB Jobs Screen, right click on the Job number that you want to print and select Print Job Results.

PowerDB Jobs Screen, right-click menu of Job 7681E selected



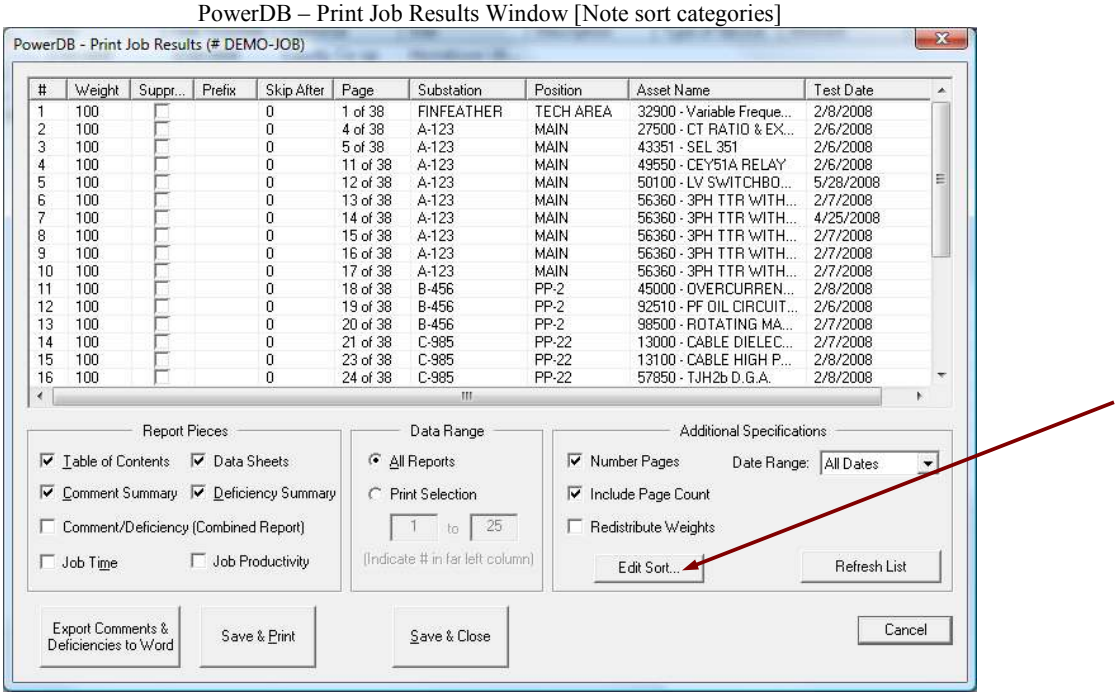
2) At this point the following PowerDB window may appear [if not skip to step 3]. Click on an option depending on what you want to do [for this example, No is selected]

PowerDB Untested Assets Window


PowerDB
This job contains equipment without results.
** NOTES About Including Blank Forms **
- Page numbers are disabled
- Weights and other order information is *NOT* saved for the untested equipment.
Do you wish to include blank forms for the untested pieces of equipment?
Yes
No

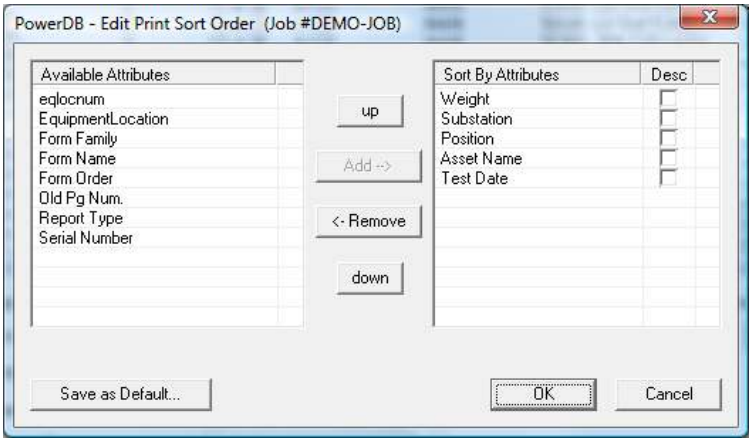
3) A Print Job Results window will appear [sort categories may be different]. Click Edit Sort.

PowerDB – Print Job Results Window [Note sort categories]


PowerDB - Print Job Results (# DEMO-JOB)
Weight Suppr... Prefix Skip After Page Substation Position Asset Name Test Date
1 100 0 1 of 38 FINFEATHER TECH AREA 32900 - Variable Freque... 2/8/2008
2 100 0 4 of 38 A-123 MAIN 27500 - CT RATIO & EX... 2/6/2008
3 100 0 5 of 38 A-123 MAIN 43351 - SEL 351 2/6/2008
4 100 0 11 of 38 A-123 MAIN 49550 - CEY51A RELAY 2/6/2008
5 100 0 12 of 38 A-123 MAIN 50100 - LV SWITCHBO... 5/28/2008
6 100 0 13 of 38 A-123 MAIN 56360 - 3PH TTR WITH... 2/7/2008
7 100 0 14 of 38 A-123 MAIN 56360 - 3PH TTR WITH... 4/25/2008
8 100 0 15 of 38 A-123 MAIN 56360 - 3PH TTR WITH... 2/7/2008
9 100 0 16 of 38 A-123 MAIN 56360 - 3PH TTR WITH... 2/7/2008
10 100 0 17 of 38 A-123 MAIN 56360 - 3PH TTR WITH... 2/7/2008
11 100 0 18 of 38 B-456 PP-2 45000 - OVERCURREN... 2/8/2008
12 100 0 19 of 38 B-456 PP-2 92510 - PF OIL CIRCUIT... 2/6/2008
13 100 0 20 of 38 B-456 PP-2 98500 - ROTATING MA... 2/7/2008
14 100 0 21 of 38 C-985 PP-22 13000 - CABLE DIELEC... 2/7/2008
15 100 0 23 of 38 C-985 PP-22 13100 - CABLE HIGH P... 2/8/2008
16 100 0 24 of 38 C-985 PP-22 57850 - TJH2b D.G.A. 2/8/2008
Report Pieces
Table of Contents
Data Sheets
Comment Summary
Deficiency Summary
Comment/Deficiency (Combined Report)
Job Time
Job Productivity
Data Range
All Reports
Print Selection
1 to 25
(Indicate # in far left column)
Additional Specifications
Number Pages
Date Range: All Dates
Include Page Count
Redistribute Weights
Edit Sort...
Refresh List
Export Comments & Deficiencies to Word
Save & Print
Save & Close
Cancel

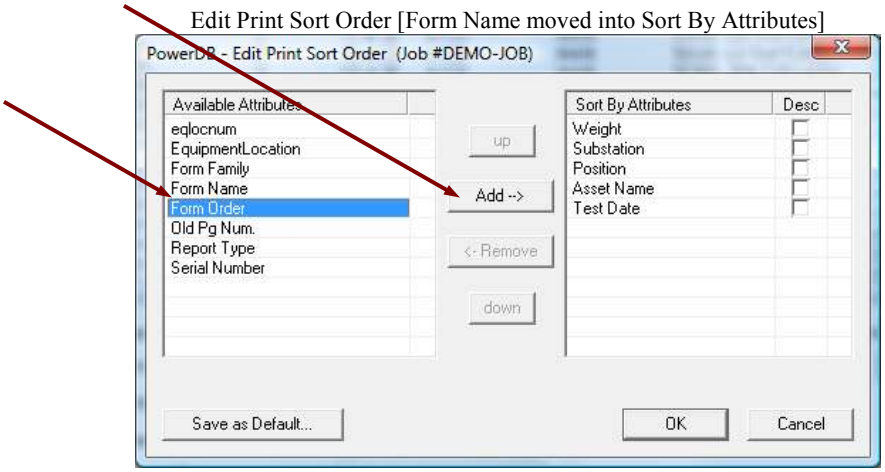
4) The Edit Print Sort Order window will appear. On the left side [Available Attributes] of the window is a list of available sort attributes that ARE NOT being used in this sort. On the right side [Sort By Attributes] of the window are the sort attributes that ARE being used in this sort. There is also a check box next to each of the Sort By Attributes. The check boxes are all in a column labeled "Desc."[Descending] If the Sort By Attribute has a checked Desc. box next to it, the attribute is sorted in reverse alpha-numeric order [zyx…ba, 98…210]. If the Sort By Attribute has an unchecked Desc. box next to it, the attribute is sorted in forward alpha-numeric order [012…98, ab…xyz]. The Sort By Attributes are considered from the top to bottom of the list. In Figure 4, the print results list would first be organized by Substation. The list would then by sorted within each substation by weight. Test forms in the same substation, with the same weight, would then be sorted in descending order by Position. Finally, test forms with the same Substation, Weight, and Position, would be sorted by Test Date.

Edit Print Sort Order Window



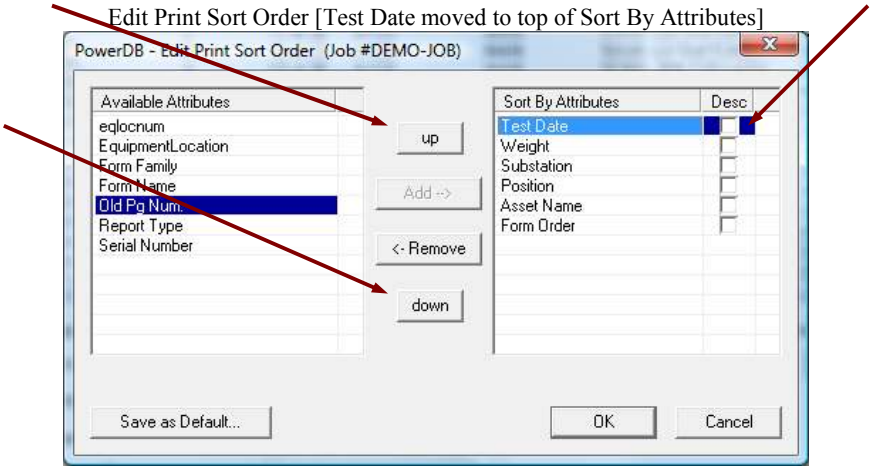
5) To add an attribute to the Sort By Attributes, highlight it in the left window and click on the Add → button. The attribute will now be listed on the bottom of the Sort By Attributes list. In the Figure below step 6, Form Order has been moved into the Sort By Attributes list. Now test forms with the same Substation, Weight, Position, and Test Date, will be sorted by Form Order.

Edit Print Sort Order [Form Name moved into Sort By Attributes]



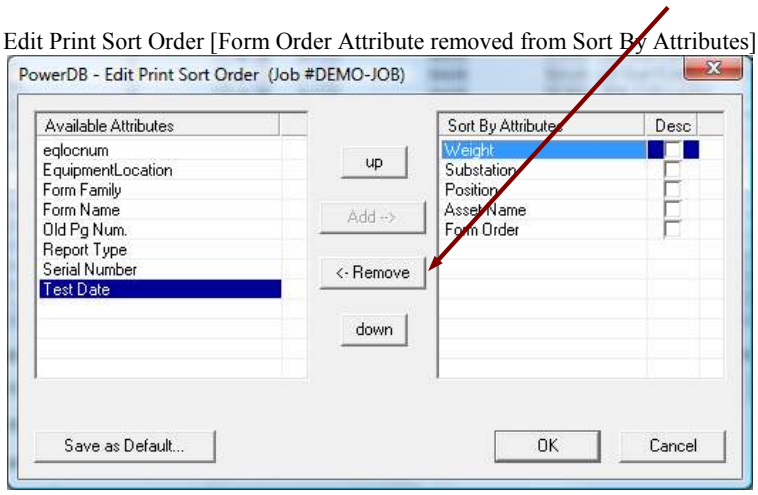
6) To change the priority of a Sort By Attribute, highlight it and then click on either the up or down buttons. You will see the attribute move higher or lower in the list. In the figure below, the Test Date is set to be the first thing considered when sorting the list. To accomplish this, single-click on Test Date. With Test Date highlighted, click on the up button four times. Now the list will be sorted using Test Date first. Test sheets from the same test date will then be sorted by Substation. Test sheets with the same Test Date and Substation will then be sorted by Weight, etc.

Edit Print Sort Order [Test Date moved to top of Sort By Attributes]



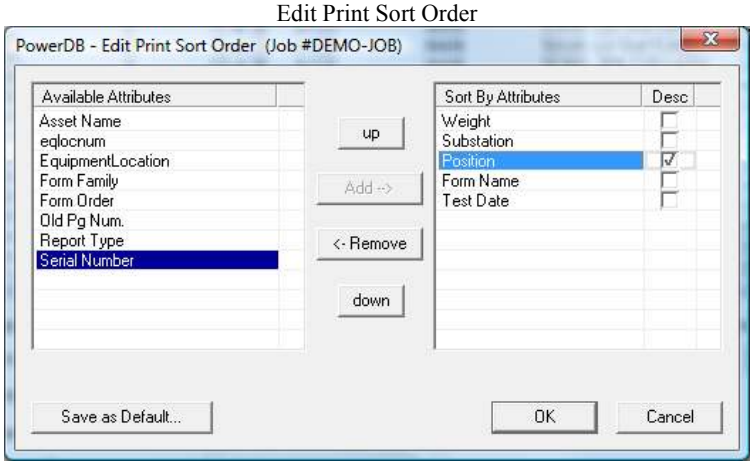
7) If you do not want an attribute to be considered while sorting the job results you can remove it from the Sort By Attributes. First highlight the attribute that you do not want in the list, click on ← Remove. In the figure below, the Test Date Attribute is removed. It no longer appears in Sort By Attributes, but is listed in Available Attributes. If anything is accidentally removed, it can easily be put back into the Sort By Attributes list (refer to Step 5)

Edit Print Sort Order [Form Order Attribute removed from Sort By Attributes]



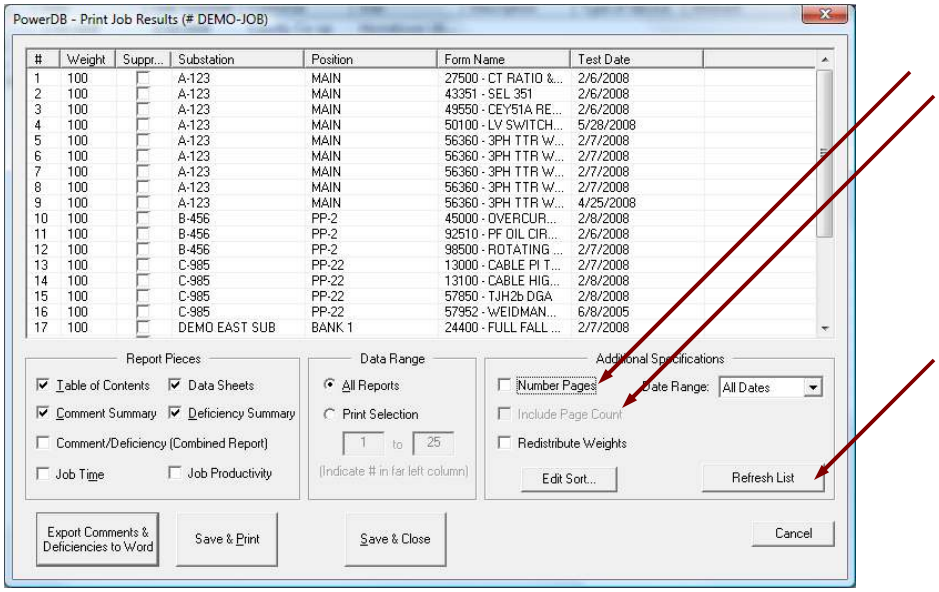
8) After organizing the Sort By Attributes as needed click on OK. In the figure below, the Sort By Attributes are organized by Weight, then Substation, then Position, then Form Name, then Test Date [Weight will be explained in later steps].

Edit Print Sort Order



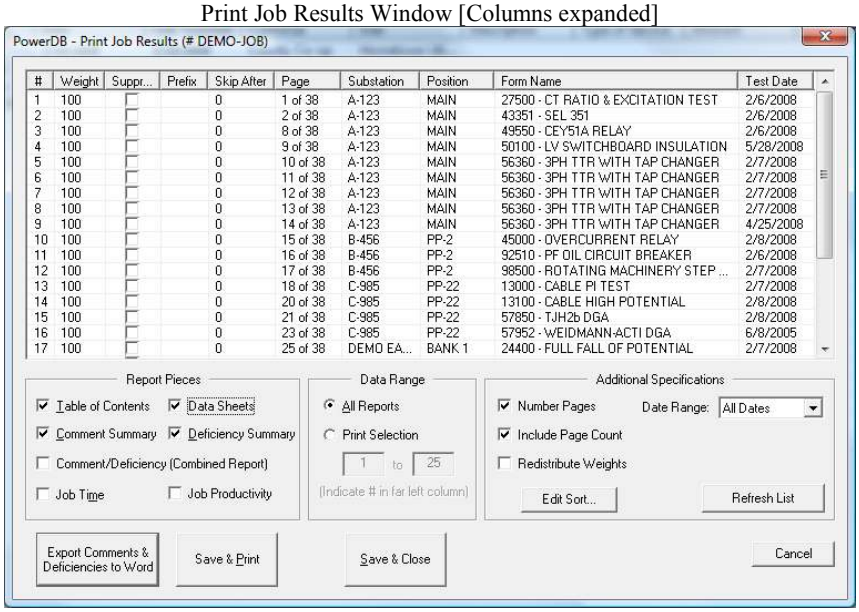
9) The Print Job Results Screen reappears. All of the Sort By Attributes are listed in the columns. Notice in the figure below that the forms have the same weight so they are sorted according to Substation. First click on Number Pages and Include Page Count. Then click on Refresh List.

Print Job Results Window



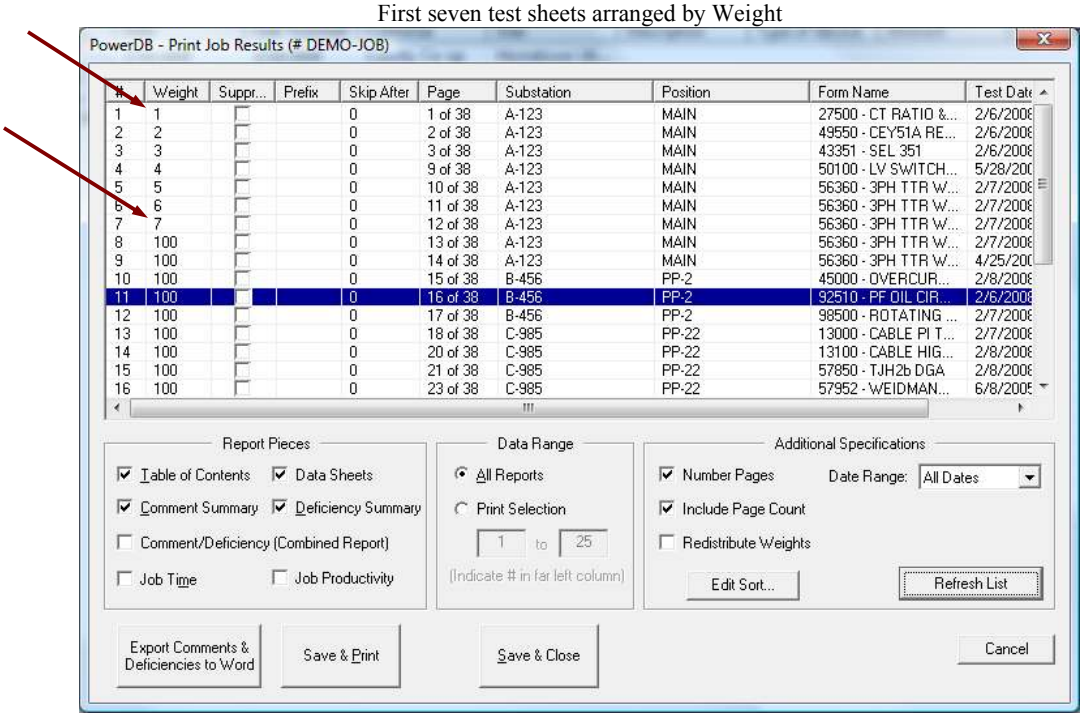
10) After selecting to include page numbers there are now three more columns in the Print Job Results window: Prefix, Skip After, and Page. A few of the columns are too small to see the entire descriptions. To expand the columns, move the mouse pointer so it is directly on the line between the column headings [on the right side of the column you want to expand]. The mouse pointer arrow will change to ←|→. Hold down the left mouse button and drag the line to the right to expand the column until you can see all information you need. The figure below shows the columns expanded.

Print Job Results Window [Columns expanded]



11) The most basic method to sort the test sheets is through the Weight values. The Weight column values default to 100. The sort order can be changed by setting the weight value for each test form. Based on the way you define the sort order, the weights are considered in regular numeric order and considered first. You can assign the weights so that the page you want first is given a weight of 1, the form you want second is given a weight of 2, etc. After you assign the weights, hit Refresh List and the pages will be rearranged as you ordered them [note: you must resize the columns each time you refresh the list]. In the figure below, the first seven test forms have been arranged using Weight.

First seven test sheets arranged by Weight

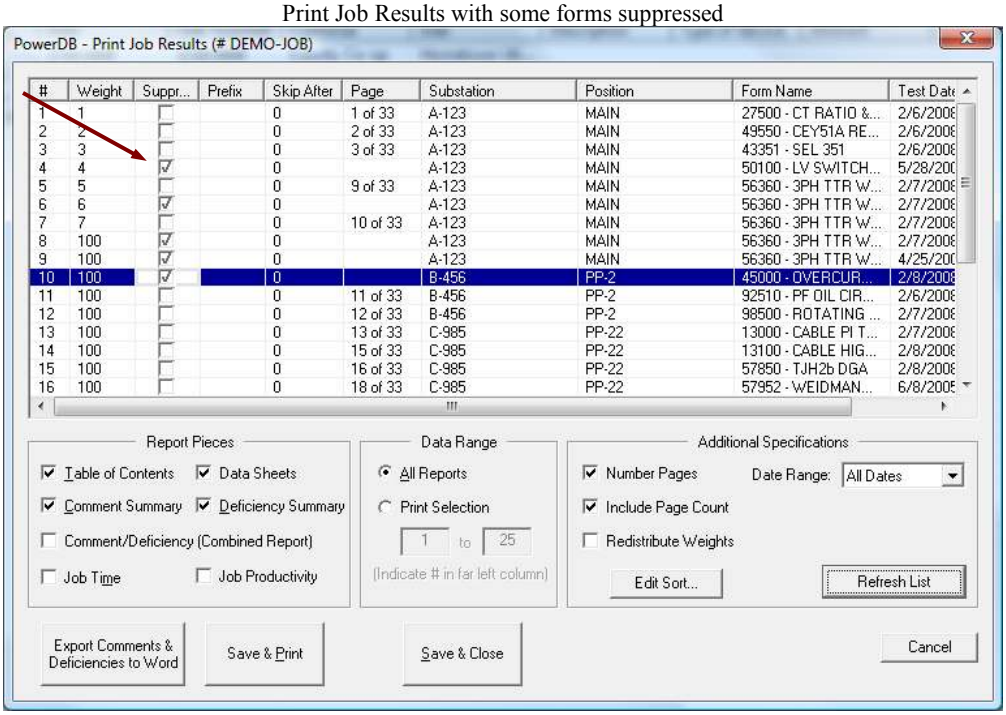


#	Weight	Suppr...	Prefix	Skip After	Page	Substation	Position	Form Name	Test Dat
1	1			0	1 of 38	A-123	MAIN	27500 - CT RATIO &...	2/6/2008
2	2			0	2 of 38	A-123	MAIN	49550 - CEY51A RE...	2/6/2008
3	3			0	3 of 38	A-123	MAIN	43351 - SEL 351	2/6/2008
4	4			0	9 of 38	A-123	MAIN	50100 - LV SWITCH...	5/28/200
5	5			0	10 of 38	A-123	MAIN	56360 - 3PH TTR W...	2/7/2008
6	6			0	11 of 38	A-123	MAIN	56360 - 3PH TTR W...	2/7/2008
7	7			0	12 of 38	A-123	MAIN	56360 - 3PH TTR W...	2/7/2008
8	100			0	13 of 38	A-123	MAIN	56360 - 3PH TTR W...	2/7/2008
9	100			0	14 of 38	A-123	MAIN	56360 - 3PH TTR W...	4/25/200
10	100			0	15 of 38	B-456	PP-2	45000 - OVERCUR...	2/8/2008
11	100			0	16 of 38	B-456	PP-2	92510 - PF OIL CIR...	2/6/2008
12	100			0	17 of 38	B-456	PP-2	98500 - ROTATING ...	2/7/2008
13	100			0	18 of 38	C-985	PP-22	13000 - CABLE PI T...	2/7/2008
14	100			0	20 of 38	C-985	PP-22	13100 - CABLE HIG...	2/8/2008
15	100			0	21 of 38	C-985	PP-22	57850 - TJH2b DGA	2/8/2008
16	100			0	23 of 38	C-985	PP-22	57952 - WEIDMAN...	6/8/2005

12) This method is fine for smaller jobs, but obviously would be tedious for a large job. Instead you could make weight the second Sort By Attribute, move Substation to the first Sort By Attribute. Then the range of weights you need would be much smaller. For example if you had 5 items each in ten substations, you could either assign them weights of 1 to 50 or you could assign the items in the each substations weights from 1 to 5. Ideally you will utilize another attribute [See Appendix A] to help sort the test forms and only have to assign a few weights letting the computer do most of the work.

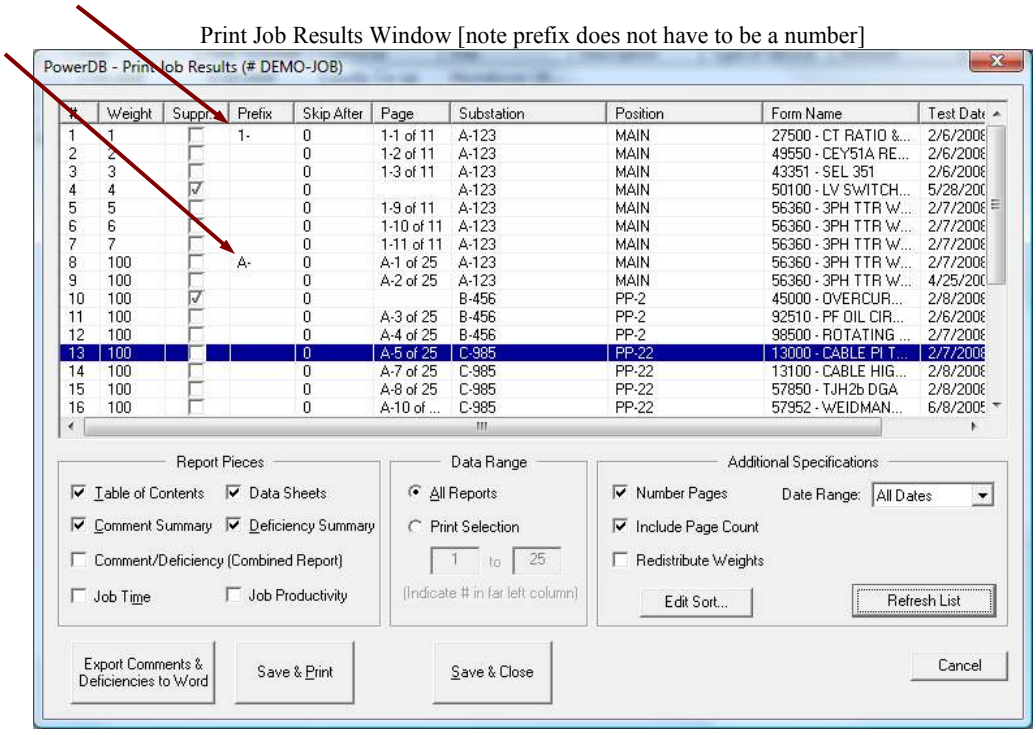
Another feature available is the Suppress check box. If this box is checked, the test form in that row will not print with the rest of the Job [the result is not deleted, just ignored for printing]. The figure below shows a few test forms suppressed [by clicking on Suppress, then hitting Refresh List]. Notice that test forms with the Suppress column checked do not have a page number in the Page column.

Print Job Results with some forms suppressed



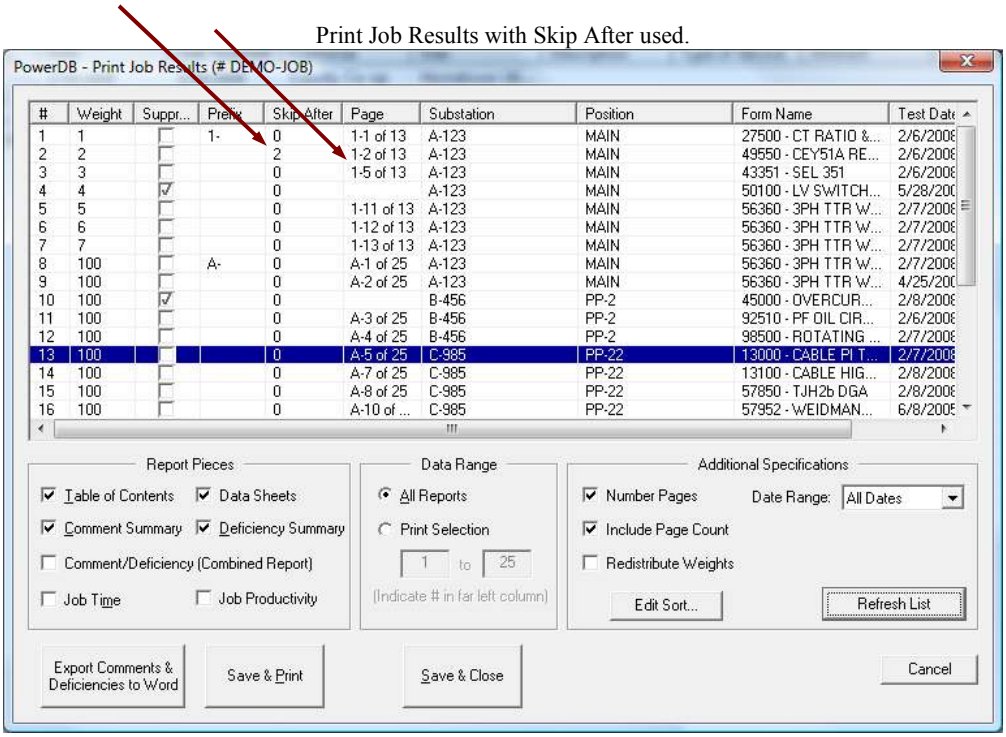
13) Another useful feature is the Prefix. You can use this to break up the report into groups. For example the third page in the first substation would be 1-3, the third page in the third substation would be 3-3. To assign prefixes enter whatever text you would like in front of the page number in the prefix section of the first test sheet in the group. In the first form of the next group enter the next prefix. The figure below shows a few prefixes entered [note most of the suppression has been removed]. After the prefixes are entered, uncheck Include Page Count, then hit Refresh List. Notice the page numbers are now assigned with prefixes.

Print Job Results Window [note prefix does not have to be a number]



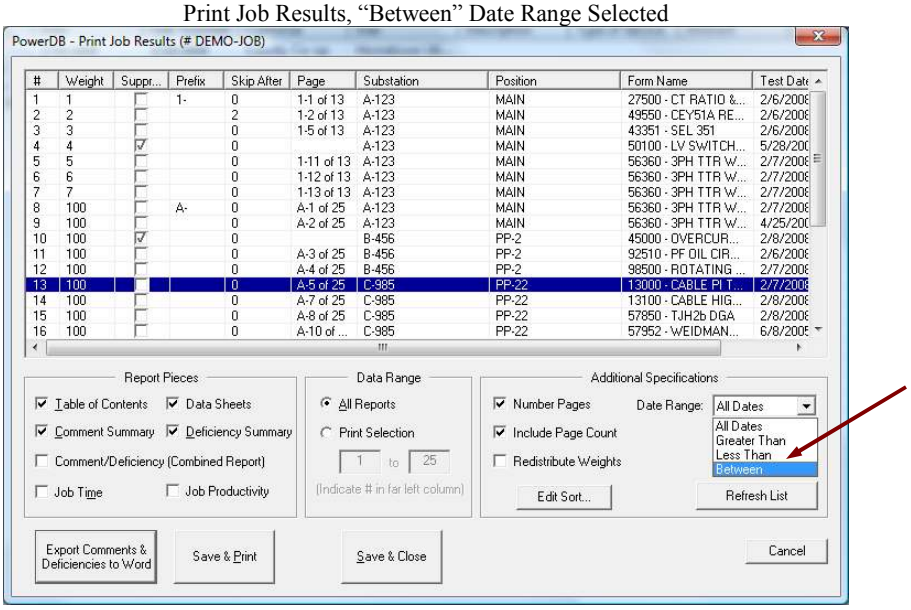
14) Next we use the Skip After Column. In the second test sheet line put the number 2 in the Skip After column and refresh the list. After refreshing the list, look at the page numbers. Notice that the third form is now page 1-5. Pages 1-3 and 1-4 have been omitted because page 1-2 [the 2nd form] has 2 in the Skip After column. If the 2nd form had 4 in the Skip After column, the third form would be page would be assigned page 1-7. This feature is helpful if you want to insert pages into the report that are not part of the PowerDB Job Results [drawings, test procedures, etc.] You can still number those pages and be consistent with the rest of the report.

Print Job Results with Skip After used.



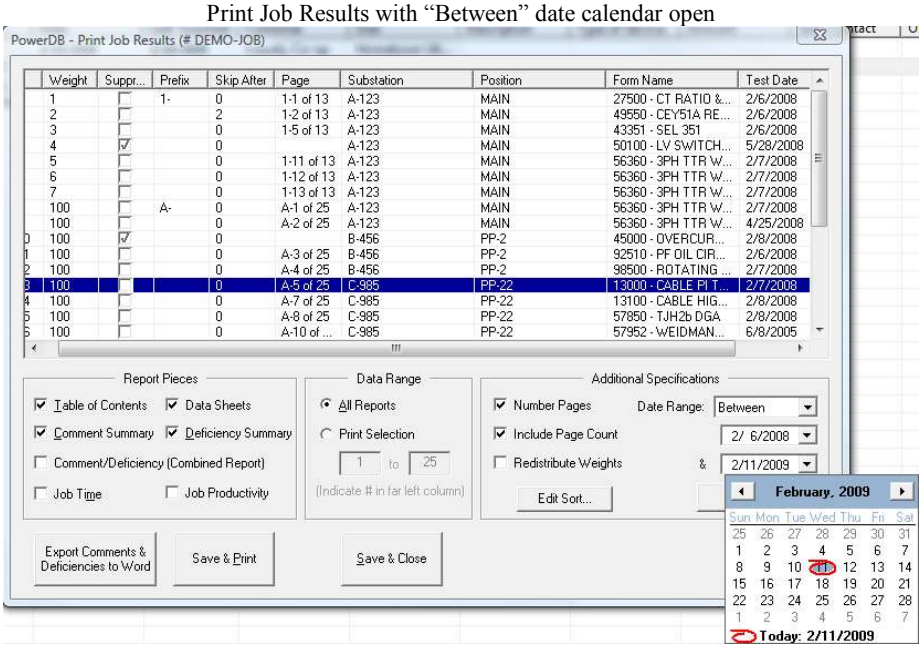
15) Next we will use the Date Range Feature. This allows you to filter out results by test date. This could also be accomplished by using Test Date as the top Sort By Attribute, but then you would have to individually suppress each form you did not want to print, or set the print range not to include forms you do not want. The Date Range feature greatly simplifies the process. From the dropdown box, select Between [the other options work basically the same].

Print Job Results, "Between" Date Range Selected



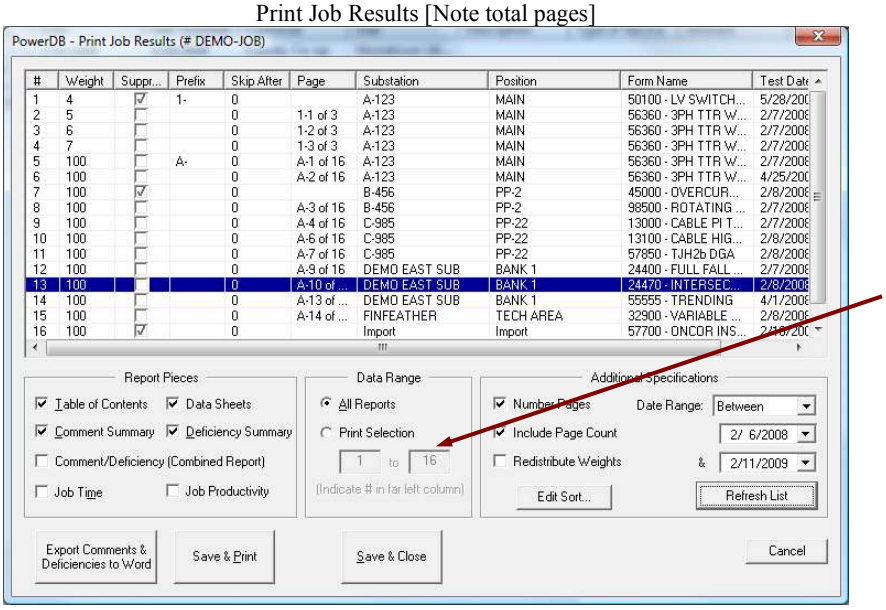
16) There will now be two dates to enter. In the figure below we are specifying the month of February. When you click on either date a calendar will appear. Select the dates directly before and after the ones you are interested in. Keep in mind, the Between, Greater Than, and Less Than comparisons are exactly as they are written. They do NOT include the date you select. Click Refresh List.

Print Job Results with "Between" date calendar open



17) After the list is refreshed notice the difference in total pages. The list now has less sheets with one simple command [compare figure below and from previous step].

Print Job Results [Note total pages]



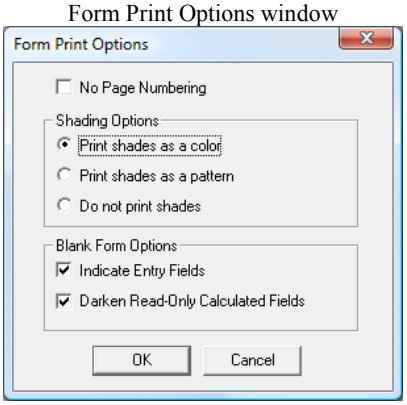
18) Additional Reports can be selected in the Print Job Results window. The options are: Table of Contents, Comment Summary, Deficiency Summary, Comment/Deficiency (Combined Report), Job Time, and Job Productivity. If the Table of Contents is checked, a table of contents will print with the report. If the Comment Summary is checked, the report will include a summary report listing the Substation, Position, Asset, Test Date and comment text of any piece of asset that had comments entered. Similarly, if the Deficiency Summary is checked, the report will include a summary report listing the Substation, Position, Asset, Test Date and deficiency text of any asset that had deficiencies entered.

19) Another option available is the Print Range. You can specify a range using the Print Selection option. Selecting Print Selection 5 to 16 will print the 5th through 16th test results [note that some test sheets are > one page therefore the # and Page Number may differ].

20) After setting the sortation, pagination, additional reports and range you are ready to print the Job. You can do one of three things: click Save & Print, Save & Close, or Cancel. If you hit Cancel, you will exit the Print Job Results window [you will be given a warning message] and none of your changes to the sort order will be saved. If you are satisfied with the sort order, but are not yet ready to print it, you can hit Save & Close. You will exit the Print Job Results window, but the sort order you defined will be saved. The next time you print the job results for this job, the sort order you defined will be already set up. The third option is to click Save & Print. This will accomplish everything that clicking Save accomplishes, but it will also print the Job.

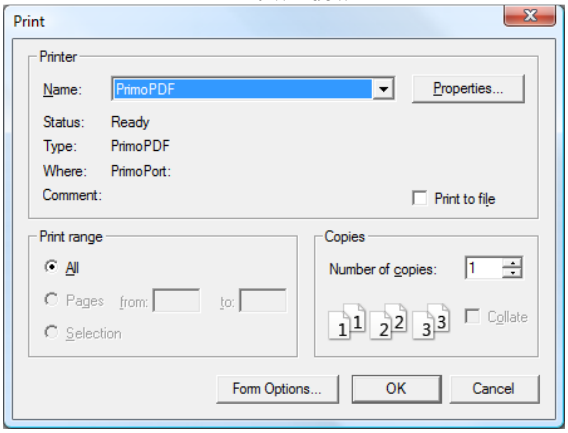
21) The Form Print Options window will appear. Select options as appropriate [if you do not want page numbers, leave it unchecked in the Print Job Results window] and click OK.

Form Print Options window



22) The Print Window will appear, select your printer or PDF writer as you would in any Microsoft Windows program and click OK to start the print job.

Print Window



5.1.1 Definitions of Sort Attributes

Asset Name: This is the name given to the asset in the job tree. Typically it is the same as the form name. Unless the default asset names are edited by the user, this would be the same as using Form Name as a Sort Attribute [except that multiple forms in the same location cannot have the same name, i.e. Cable Test, Cable Test(2), etc.]

Asset Location: This uses the information entered into the EQPT. LOCATION field of the Header.

Form Name: This is the form name seen in the Form Editor tree.

Serial Number: This uses the information entered into the SERIAL NO. field on the test forms

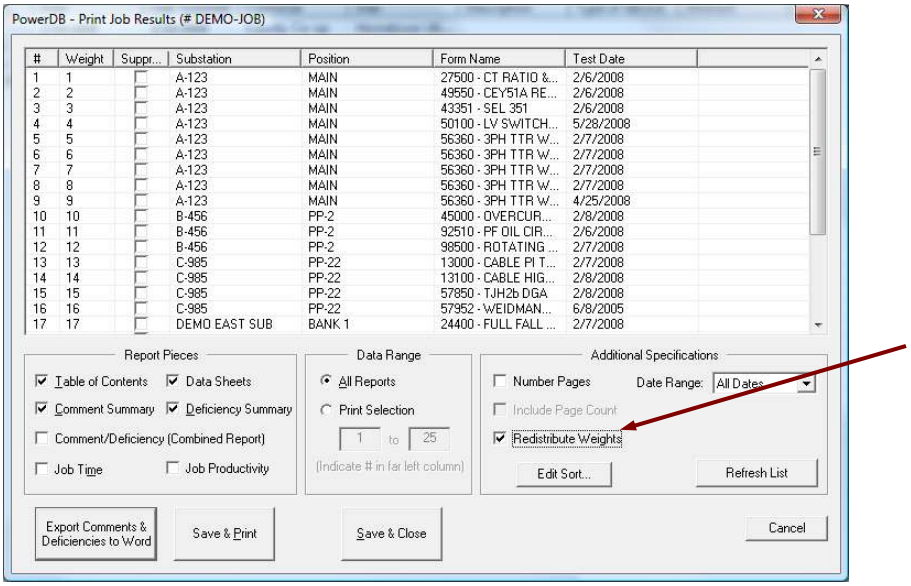
Test Date: This uses the information entered into the DATE field of the Header.

Weight: This field is set by default to 100. The values can be changed to help you sort the report.

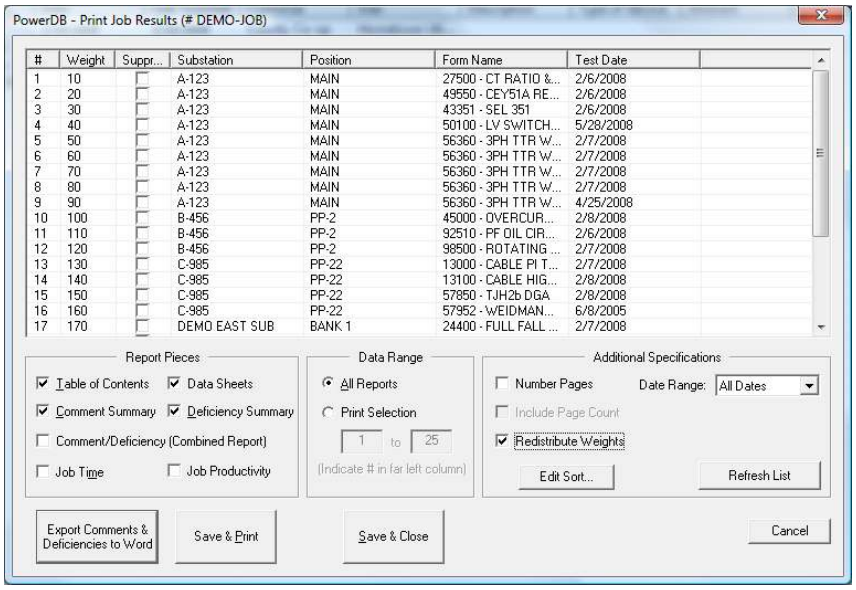
Old Pg Num: Refers to the page number that was assigned during the last print.

5.1.2 Redistribute Weights

This checkbox was not covered in the step-by-step instructions, but can be quite useful. What this does is provide some separation between the weights that you assigned by multiplying the value by 10. For example, if you had ordered each test sheet by assigning the weights to the page number you wanted you would have:


PowerDB - Print Job Results (# DEMO-JOB)
Weight Suppr... Substation Position Form Name Test Date
1 1 A-123 MAIN 27500 - CT RATIO &... 2/6/2008
2 2 A-123 MAIN 49550 - CEY51A RE... 2/6/2008
3 3 A-123 MAIN 43351 - SEL 351 2/6/2008
4 4 A-123 MAIN 50100 - LV SWITCH... 5/28/2008
5 5 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
6 6 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
7 7 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
8 8 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
9 9 A-123 MAIN 56360 - 3PH TTR W... 4/25/2008
10 10 B-456 PP-2 45000 - OVERCUR... 2/8/2008
11 11 B-456 PP-2 92510 - PF OIL CIR... 2/6/2008
12 12 B-456 PP-2 98500 - ROTATING ... 2/7/2008
13 13 C-985 PP-22 13000 - CABLE PI T... 2/7/2008
14 14 C-985 PP-22 13100 - CABLE HIG... 2/8/2008
15 15 C-985 PP-22 57850 - TJH2b DGA 2/8/2008
16 16 C-985 PP-22 57952 - WEIDMAN... 6/8/2005
17 17 DEMO EAST SUB BANK 1 24400 - FULL FALL ... 2/7/2008
Report Pieces
Table of Contents
Data Sheets
Comment Summary
Deficiency Summary
Comment/Deficiency (Combined Report)
Job Time
Job Productivity
Data Range
All Reports
Print Selection
1 to 25
(Indicate # in far left column)
Additional Specifications
Number Pages
Date Range: All Dates
Include Page Count
Redistribute Weights
Edit Sort...
Refresh List
Export Comments & Deficiencies to Word
Save & Print
Save & Close
Cancel

If you needed to add a form and wanted it to appear 3rd, instead of renumbering all of the weights you can click Redistribute Weights and Refresh List to get:


PowerDB - Print Job Results (# DEMO-JOB)
Weight Suppr... Substation Position Form Name Test Date
1 10 A-123 MAIN 27500 - CT RATIO &... 2/6/2008
2 20 A-123 MAIN 49550 - CEY51A RE... 2/6/2008
3 30 A-123 MAIN 43351 - SEL 351 2/6/2008
4 40 A-123 MAIN 50100 - LV SWITCH... 5/28/2008
5 50 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
6 60 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
7 70 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
8 80 A-123 MAIN 56360 - 3PH TTR W... 2/7/2008
9 90 A-123 MAIN 56360 - 3PH TTR W... 4/25/2008
10 100 B-456 PP-2 45000 - OVERCUR... 2/8/2008
11 110 B-456 PP-2 92510 - PF OIL CIR... 2/6/2008
12 120 B-456 PP-2 98500 - ROTATING ... 2/7/2008
13 130 C-985 PP-22 13000 - CABLE PI T... 2/7/2008
14 140 C-985 PP-22 13100 - CABLE HIG... 2/8/2008
15 150 C-985 PP-22 57850 - TJH2b DGA 2/8/2008
16 160 C-985 PP-22 57952 - WEIDMAN... 6/8/2005
17 170 DEMO EAST SUB BANK 1 24400 - FULL FALL ... 2/7/2008
Report Pieces
Table of Contents
Data Sheets
Comment Summary
Deficiency Summary
Comment/Deficiency (Combined Report)
Job Time
Job Productivity
Data Range
All Reports
Print Selection
1 to 25
(Indicate # in far left column)
Additional Specifications
Number Pages
Date Range: All Dates
Include Page Count
Redistribute Weights
Edit Sort...
Refresh List
Export Comments & Deficiencies to Word
Save & Print
Save & Close
Cancel

Now you can make the form you want to insert have a weight of 21 [uncheck Redistribute Weights before you refresh] and leave the rest alone. This allows you to only have to change one weight instead of every weight in the job.

5.1.3 Custom Print Functionality

PowerDB allows the user to create custom fields to further define results print ordering. A Sub-Form titled Custom Field Entry has been added to each existing form and by default will be included on all new forms added to the Forms Editor. The user can delete this sub-form in their form design. Controls added to this sub-form will be visible and editable during data entry but can be made to not print in the Job Results. This will allow the user to enter additional fields to be used for print ordering. To utilize this functionality two steps are required, first to create the custom fields in the sub-form and next to define these fields in the system.

- Create Custom Sort Fields

To add the new custom sort fields to be available on all forms click on the Sub-Form button and double click on the Custom Field Entry sub-form in the tree. Add text and numeric controls to the sub-form and tag name the input controls with a unique Tag Name not used elsewhere in any forms for example, Custom_Field1, Custom_Field2. You may underline or outline the controls to make them more easily visible during data entry. Check Hide on Print for these controls. Define your tab order and save your changes.

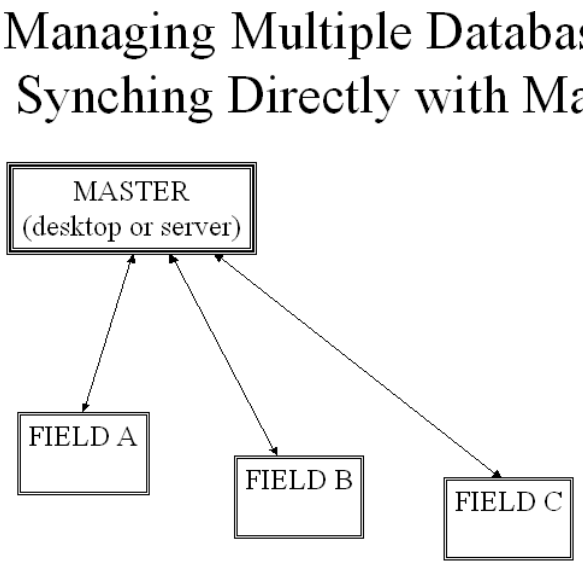
- Define Custom Fields

Go to Tools > Administration > Database Options > User Defined Fields; Edit Fields to define the fields for sorting. In the Form Tag column, enter the tag names exactly as created in the step above as a date, numeric or string (text) and set a default value if desired. Click OK to enable your changes.

To add these fields into your Print Job Results dialog, click the Edit Sort button. The new fields will appear in the Available Attributes list. Click on these attributes and then click the Add button. Sort the selected attributes by clicking on each attribute and then move each attribute up or down in the listing. Checking the descending column (DESC) will order that attribute in descending order (Z-A for example). Click OK to view the Print Job Results. The custom fields will appear in the dialog box and results sorting will be as defined.

6. Database Synchronization

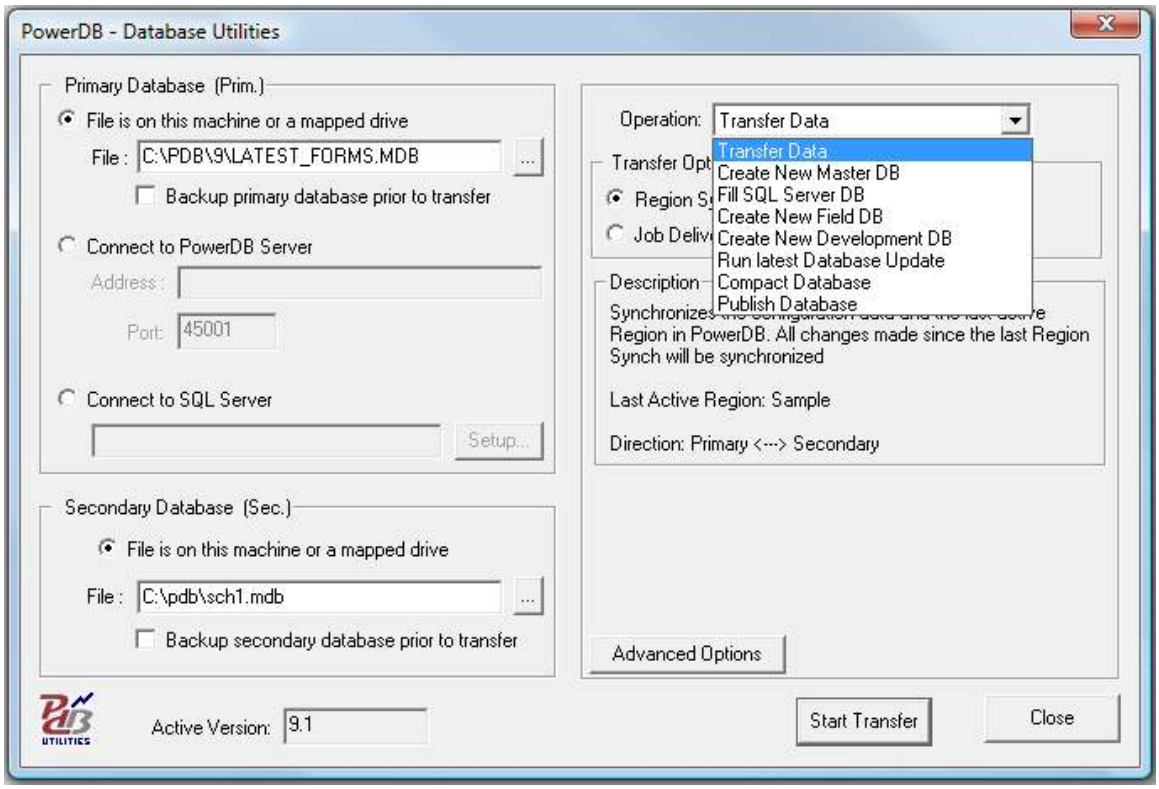
It is important to understand the concept of a database and the interrelationship between databases. A database is not document based. It is a tool to allow all of your data to reside in one file location. If you have multiple PowerDB users, one database should be defined to be the single 'master' database and all other databases should be 'field' databases. When PowerDB is installed the default database is a master database. Create all field databases from your master database. Field databases should be used on technician laptops and office desktops not directly connected to the master. In multiple license situations the master database should be located on a file server. Synchronization propagates changes between databases so that they are mirror images of each other. Synchronization uses unique identifiers and date stamps to determine what data needs to be moved.



PowerDB allows you to create new databases and synchronize the data among these different databases using the PowerDB Database Utilities tool. PowerDB utilizes a client/server architecture to synchronize databases.

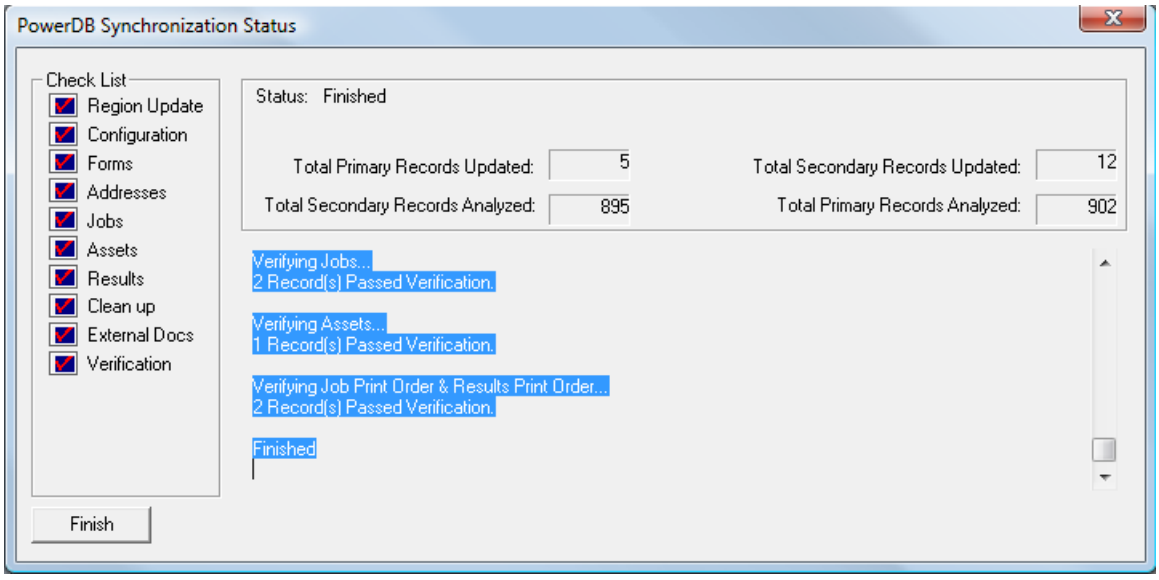
6.1. PowerDB Database Utilities (PDB Utilities)

The PowerDB Database Utilities tool is utilized in a variety of ways. Operations include: create new Master, Field, and SQL Server databases, run latest database update, and compact database. The Job Transfer operation moves data between databases.



6.2. Field Database Creation

Creation of new field databases may be launched from two areas of the application while the master database is active. Go to the File > New Database > New Field DB menu item, or while viewing the Job List go to Tools > Synchronize Region. The PDB Utilities dialog will appear. Make sure the operation is set to Create New Field DB. In the Open dialog, set the name and storage location of the new database. When completed, the field database will be loaded with the current user accounts, forms, sub-forms, and address book information. PDB Utilities will complete several synchronization steps while creating the new field database including: updates of configuration, forms, addresses, jobs, asset, and results. It also executes clean up and verification processes. The job and related information, including asset used, and results, will be transferred on command as described in Section 6.3.



6.3. Synchronizing Data

The synchronization logic of PowerDB – Database Utilities has been rewritten to streamline data transfer and eliminate conflicts. Prior to Version 9 a set of test results was handled as a single file. If changes to the same results file were made in two databases since the last synchronization a conflict situation resulted requiring user input to resolve.

The DeltaSynch approach handles each results field individually thus virtually eliminating a conflict situation. If there is a conflict in a data field between the two databases, it is automatically resolved by the system picking the most recently modified value. However results fields, jobs, addresses, and external documents have archives or 'Deltas' which allow the user to rollback a change if the automatic date-driven conflict resolution does not select what the user intended, or if the user needs to undo a change.

Below is a table defining different operation types. Note: Master can be the Secondary DB only if the Primary is also a Master.

OPERATION TYPE	DIRECTION PERMISSIONS	PRIMARY DB TYPE	SECONDARY DB TYPE
Synchronization:			
Region (includes address book)	Primary <--> Secondary	M,F	M,F
Config (optionally may include address book)	Primary <--> Secondary	M,F	M,F,D

Download:			
Job Delivery	Primary --> Secondary	M,F	M,F,D
Point in Tree	Primary --> Secondary	M,F	M,F,D
Upload:			
User Account	Primary <-- Secondary	M	M,F,D
Form	Primary <-- Secondary	M	D
Subform	Primary <-- Secondary	M	D
Curves	Primary <-- Secondary	M	D

Database Types:

M-Master
F-Field
D-Development

Either the master database or a field database may initiate a synchronization using the 'Tools > Synchronize Region' menu option or by choosing 'Synchronize Region' from the right click menu of a selected job from the Job List. This will open the PDB Utilities dialog where the specifications of the synchronization are selected.

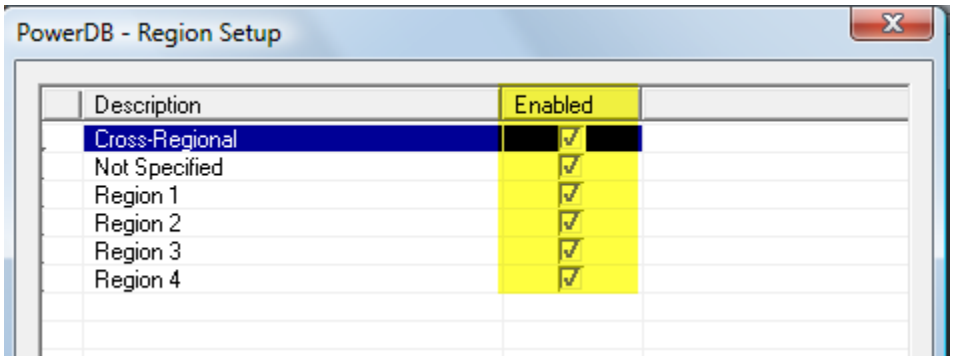
6.3.1 Region Synch

Version 9 will require you to use regions. A region can be defined by geography, facility, division, department, office, district or any grouping that exists in your organization. If you have not previously enabled regions (found at Tools>Administration>Database Options) the Version 9 update will automatically enable regions and place all Jobs, Addresses, and User Accounts into a default system region named Not Specified.

If your business requires only a single region you may leave your jobs, user accounts and addresses in the default Not Specified region and proceed as usual. Be aware that all jobs and data will be synchronized between master and field databases.

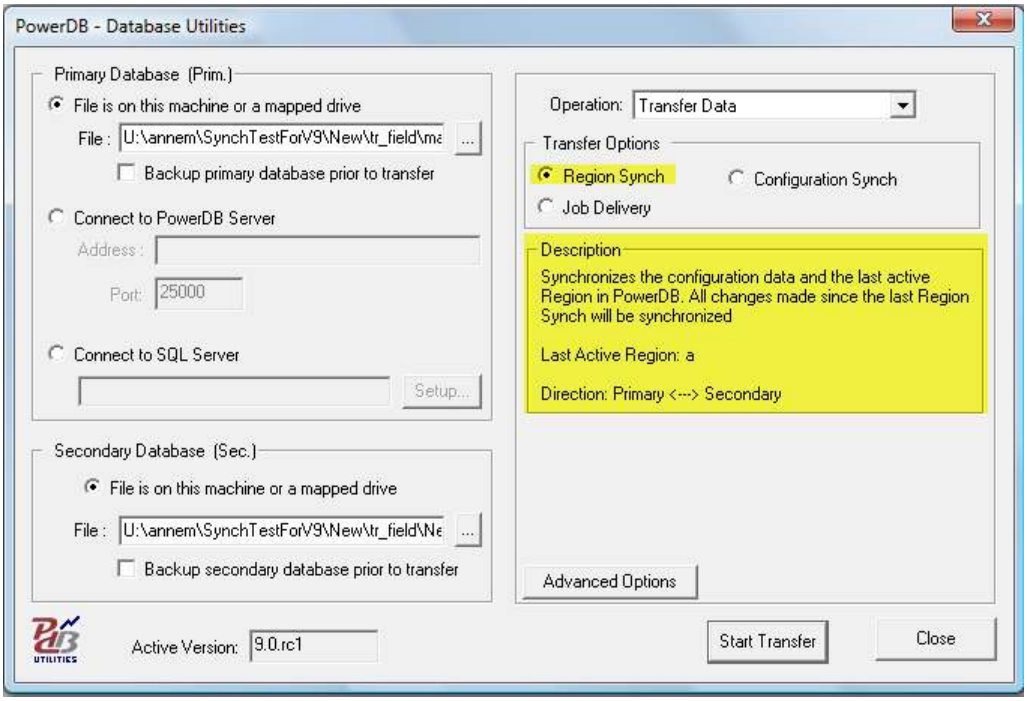
If you enable any other region then you will be required to assign regions to all jobs, addresses and user accounts before you will be able to synchronize. Jobs and data remaining in the default Not Specified region will not synchronize.

Note: Not Specified and Cross-Regional are system regions and are set to enabled by the application. This status cannot be changed. These regions can be renamed. Other regions can be added or renamed.



DeltaSynch relies on Regions to synchronize databases. Users will be able to synchronize their data based on what region is currently active. Region Synchronization is unmanned meaning after the synchronization process starts, it is automated with no user intervention required. Changes, updates and results are synchronized with 'keep most recent date' logic prevailing.

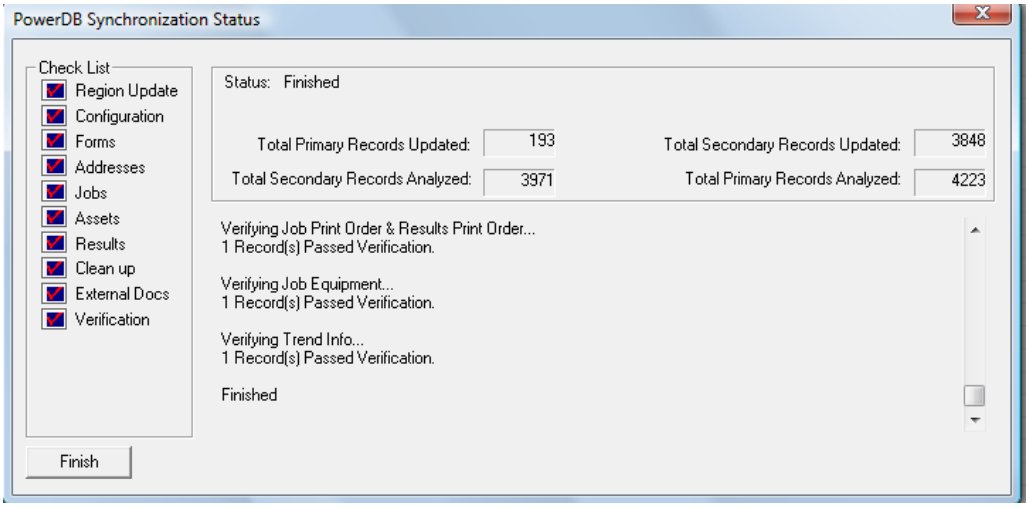
When synchronization is launched the selected region is updated in both databases for all jobs, assets, results, addresses and user accounts. Region assignment is based on the most recent region change to an item. Only data that has been modified or added since the last Region Synchronization is processed based on the last Region Synchronization Date. This date can be ignored through a setting if it is necessary to resynchronize all data (this is described later).



1. Select your primary and secondary database. If one database is the master, it should be the primary. Under the "Operation" drop down box in the top right, select "Transfer Data".

2. In the "Options" area, select "Region Synch"
3. If you want to synchronize all data in the databases ignoring the last synchronization date then check the "Full Synchronization" under the Advanced Options button. **WARNING:** Checking this option will cause all data in the region to be resynchronized and the process will be slowed.
4. If you want to only synchronize addresses in the active region, select the "Addresses in Region" option under the Advanced Options button. If you would like to synchronize all of the addresses in the databases, select the "Full Address Book" option. **WARNING:** Checking this option will cause all addresses in the database to be resynchronized and the process will be slowed.

- During the Synchronization the status dialog will be visible.



- In the top right are counts displaying how many records have been analyzed on the primary and secondary databases, and how many records have actually been updated in both databases.

- In the bottom right, important status and update messages are displayed. Please use the scroll bar to view this entire section.

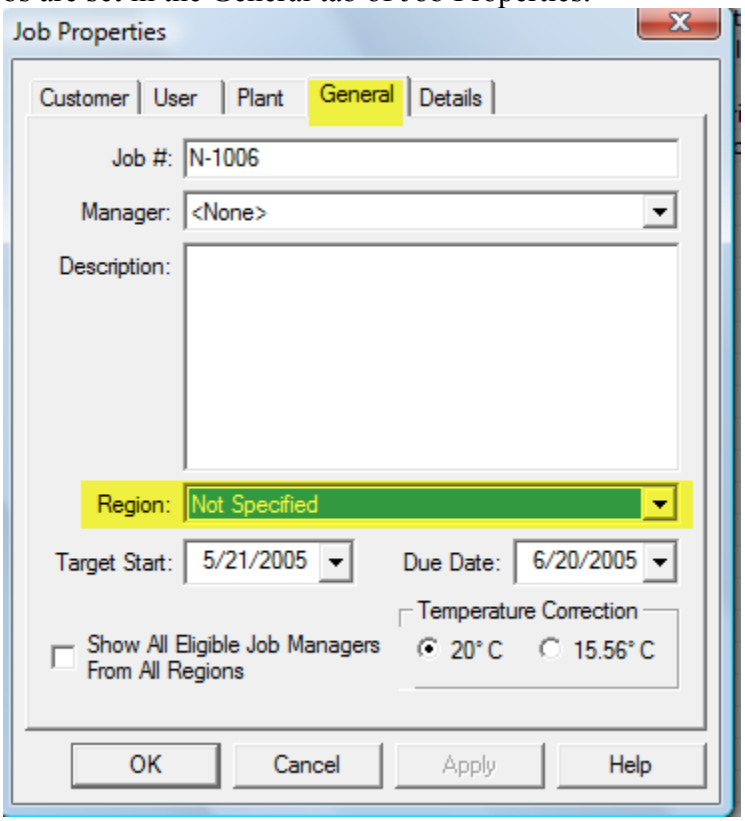
- On the left side is the Check List. After the synch and verification are finished there are three states the check boxes can be in.

1. If Check List fields are blue with a check, the process completed without exception.
2. If Check List fields are yellow with an exclamation mark, then there was a warning. A warning lets the user know that there is a record in one database that did not have a match in the other database. However, the record was not supposed to move due to the synchronization rules. This occurs most often in a Point in Tree

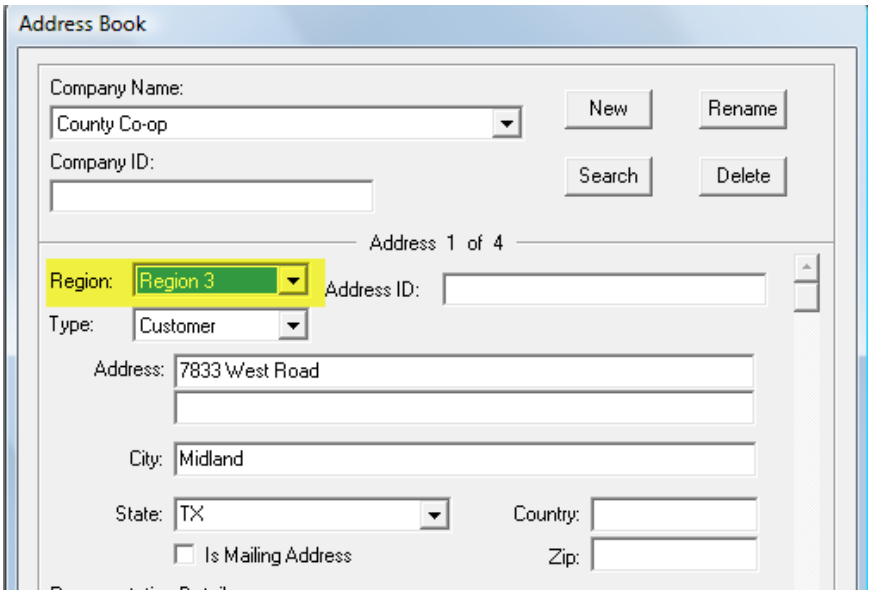
Download or Job Delivery process because records are only allowed to move one direction, Primary->Secondary.

3. If Check List fields are red with a Question mark, then there was a verification error and the synchronization dates are not updated. If this situation occurs please immediately go to Help>Submit Files and submit your synchronization log files.

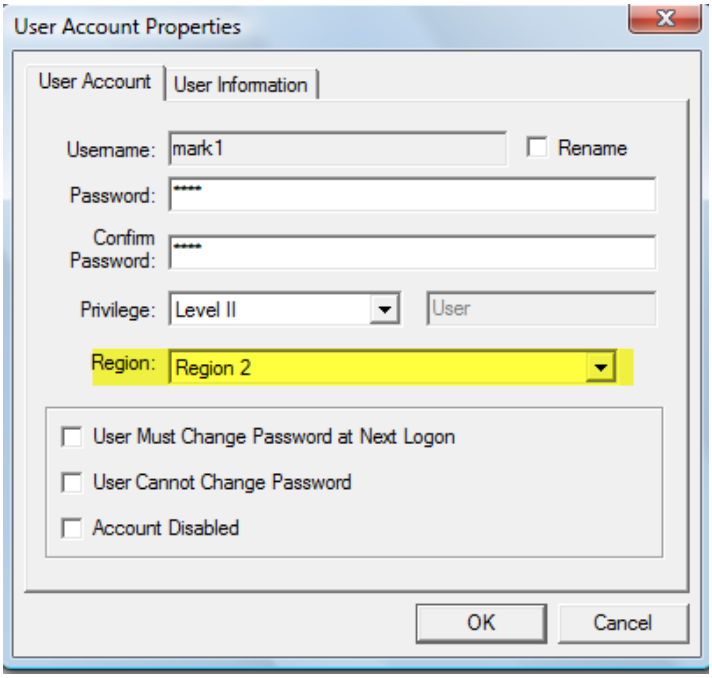
Regions for jobs are set in the General tab of Job Properties.



Regions for addresses are set in the Address Book.



Regions for user accounts are set in each user account.



Other types of synchronizations and configuration transfers are described below.

6.3.2 Configuration Synch

- This can be run by launching Database Utilities and selecting the Configuration Synch check box.
- This synchronizes the configuration settings (found at Tools>Administration), forms, subforms, addresses, user accounts, regions.
- This is a true synchronization going both directions

Primary< -- >Secondary

- Like the Region Synch this synchronization uses a Config Synch Date to keep track of when the last synchronization was done and only moves new changes. This Config Synch Date can be ignored if the user needs to resynchronize all configuration data (selected at the Advanced Options button).
- The user has the option of synchronizing the full address book, or no addresses (selected at the Advanced Options button).

6.3.3 Job Delivery

- This can be run from the Job List by right-clicking a job and selecting Deliver Job. This can be run from Database Utilities by selecting Job Delivery.

- This is one-direction only, pushing from the primary to the secondary (primary --> secondary) including properties, assets, active data results.
- First, all data in the secondary database associated with the job is deleted. Second, the job record from the primary is pushed down to the secondary. This forces the job in the secondary database to be an exact image of the primary's job regardless of what already exists in the secondary database. Assets related to other jobs are pushed to the secondary but the associated data results are not.

6.3.4 Point In Tree Download

- This takes a point in the primary database asset tree or job tree and pushes all assets, results, and their associated data to the secondary database.
- This is one-direction only, pushing from the primary to the secondary (primary --> secondary)
- This does not remove anything from secondary database, it just pushes items from the primary to the secondary.
- No Jobs are sent to the secondary and jobs will not be added to the secondary Job List.
- This is launched by right-clicking at a folder level in the primary database Asset Tree and selecting Point in Tree Download.

6.3.5 User Accounts Upload

- Must have Administrator rights to run a User Account upload.
- Uploads account changes from a Secondary database to the master database.
- Any User Account changes made in a field or development database do not go into effect immediately. To activate changes, run the User Account operation in Database Utilities to upload to the master. User Account changes in the master must be passed back down to activate in the secondary database.
- This operation is launched in the User Account list. Right-click in the list. If there are User Account changes there will be a menu item to upload user accounts. After the User Account upload is finished, a Config synch is run automatically to synchronize the changes back down to the secondary.

6.3.6 Form Upload

- This is a Development Database only operation which will upload a single form, its subforms, external documents, help and form update descriptions to the Master Database.
- One direction from secondary to primary
- This upload is launched by right-clicking a form in the Form Editor tree and selecting Upload Form to Master.

- NOTE: Must be in a Development Database to have this upload option available.

6.3.7 Subform Upload

- This is a Development Database only option which will send a single subform, its external documents, help and update descriptions to the Master Database.
- One direction from secondary to primary
- This can be launched by right-clicking a subform in the Subform Editor tree and selecting Upload Subform to Master.
- NOTE: Must be in a Development Database to have this upload option available.

6.3.8 Curves Upload

- This is launched in a Development Database by opening the Curve Library dialog found in the View menu. Select the curve(s) that you want to upload to the master and click the "Upload Curves" button.
- Uploads the selected Curve(s) to the Master Database.
- One direction from Development Database to Master Database.

6.4. Deltas and Delta Sessions

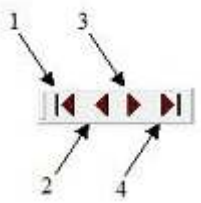
Stepping forward and back between Delta Sessions as described below is intended to be used only as a recovery tool means to recapture saved values.

CONFLICT - defined as a data value that has changed in both databases since the last synchronization

DELTA SESSION - started by opening a result (new or old); all changes made to the results and saved are applied to the Delta; if more changes are made to the results and saved again all new changes are applied to the same Delta because the user is in the same (open) Delta Session; all changes and saves will continue to apply to the open Delta Session until a new Session is started – NOTE: only the last 'save' in a Session is retrievable. A Delta Session is ended by closing the results, reopening the same result, opening another result or creating a new result.

PowerDB Version 8 and prior treated a set of data results in its entirety as a single record. If any data value(s) in a results record had been changed in both synchronizing databases since the last synchronization a conflict situation was created requiring user intervention to resolve. The new DeltaSynch approach handles each results field individually thus virtually eliminating a conflict situation. If there is a conflict in a data field between the two databases, it is automatically resolved by the system picking the most recently modified value. However results fields, jobs, addresses, and external documents have archives or 'Deltas' which allow the user to selectively rollback a change if the automatic 'last date saved wins logic' does not select what the user intended, or if the user needs to undo a change.

To view the Deltas for a result the user needs to open the result. In the toolbar are 4 arrows to allow the user to step forward and back through Delta Sessions.



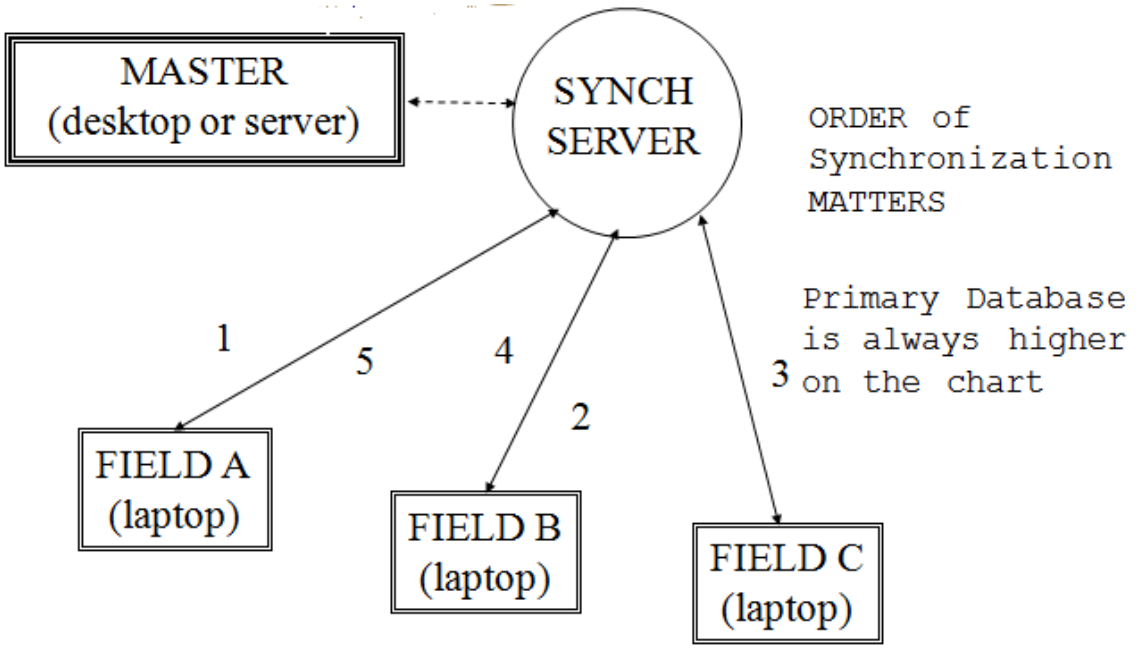
1-Steps back to the very first saved Delta Session
2-Steps back one Delta Session from the session currently displayed
3- Steps forward one Delta Session from the session currently displayed
4-Steps forward to the most recent Delta Session saved
As you step back and forward between Delta Sessions, all affected data fields will show green if the saved value has changed between Delta Sessions. To recover one or more values from a previous Delta Session, right-click in a data field and select Pull Fields From History. Then shift-click on one or more fields to be changed. The user will be returned to the current Delta Session and the pulled values will be set into the fields. To keep these changes, the results must be saved as modified; otherwise the changes will be discarded if not saved.
Note: Due to scripting logic some header and calculated fields may appear green indicating a change when in fact there has not been a change. Please focus on data entry fields as you step back and forth through delta sessions.
Changes made to an asset such as its name and tree location can be viewed and restored from the Asset or Job Tree right click menu item View Outside Relay Changes. These changes are not related to Delta Sessions.

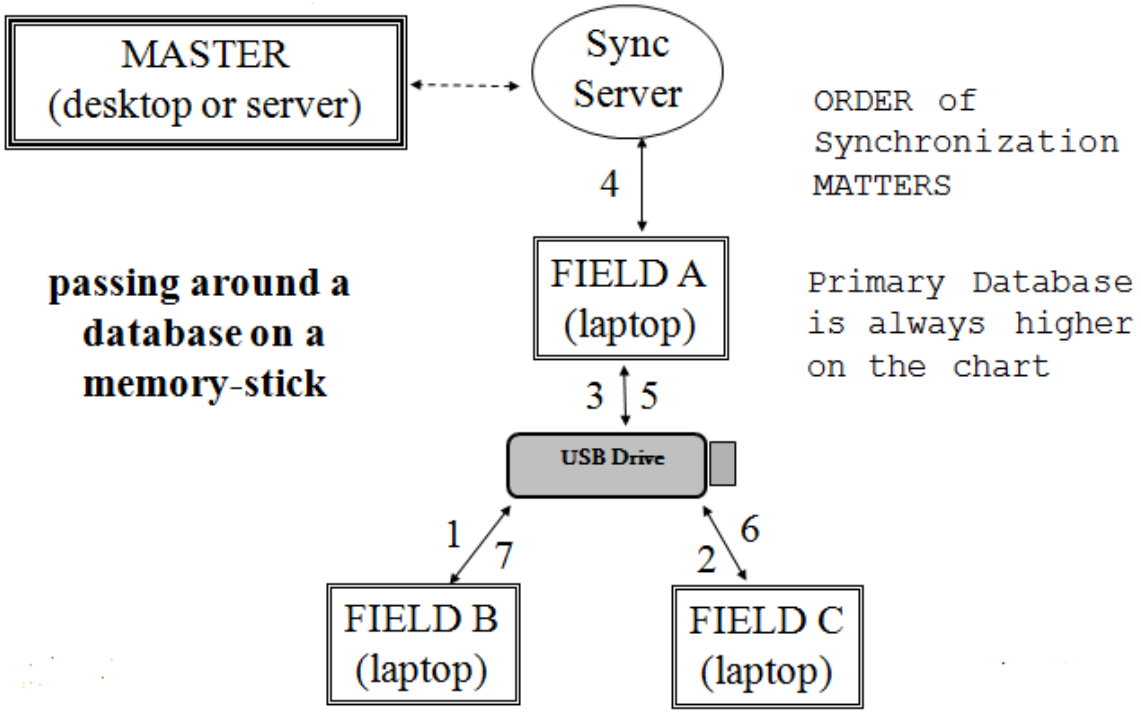
6.5. Mastering Synchronization

Key points to remember:

- NEVER copy an active database to be used on another machine
- By definition, synchronization is moving data so that selected jobs between two databases appear as mirror images
- Synchronization uses the unique IDs and modification dates to determine what records need to be moved
- When synchronizing with the Master database, the MASTER will always be PRIMARY
- When synchronizing between other databases pairs, the database that falls CLOSER TO THE MASTER on the synchronization pyramid is the PRIMARY

The following diagrams demonstrate the various pyramid relationship options between databases during the synchronization process. The Synchronization Server is described in Section 7.

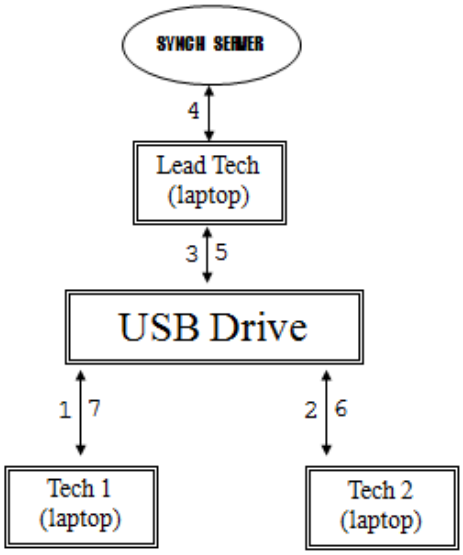




passing around a database on a memory-stick

3 TECHS & USB DRIVE

- Sync #1
  - Primary DB
    - Intermediate DB on USB drive
  - Secondary Db
    - Database on Tech 1's machine
- Sync #2
  - Primary DB
    - Intermediate DB on USB drive
  - Secondary Db
    - Database on Tech 2's machine
- Synch #3
  - Primary DB
    - Database on Lead Tech's machine
  - Secondary DB
    - Intermediate DB on USB drive
- Synch #4
  - Primary DB
    - Connect to PowerDB Server
  - Secondary DB
    - Database on Lead Tech's machine
- Synch #5
  - Same settings as Sync 3
- Sync #6
  - Same settings as Sync 2
- Sync #7
  - Same settings as Sync 1



7. Development Database

Certain processes MUST be done in a 'Development Database'. These are limited to:

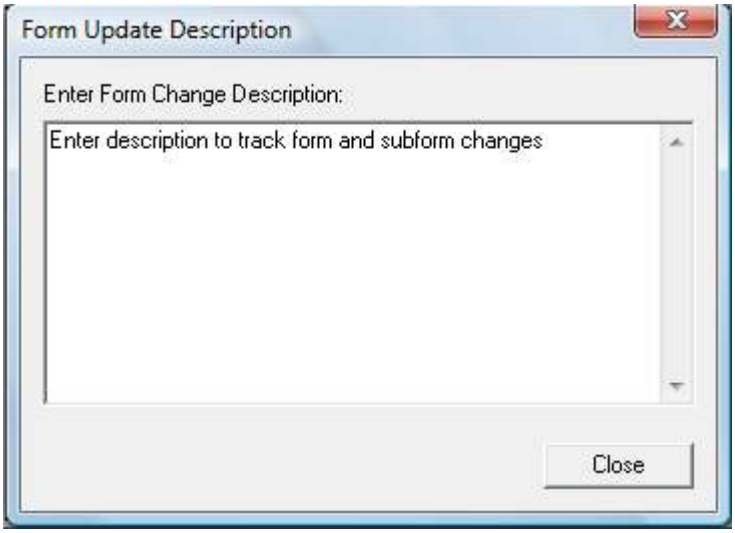
- Form Editor maintenance
- Subform Editor maintenance
- Curve Library maintenance

Development Databases can only be created from a master database. To create a Development Database go to File > New Database > New Development DB or go to Database Utilities and select 'Create New Development Database'. To connect to this database go to File > Change Database or log in again and change database. You will be required to use a user account other than the Administrator account to apply changes made in the Development Database to the Master Database.

Changes made in the Form Editor must be uploaded to the master database using Database Utilities or by exporting the .pxd file of the modified form. Migrating form changes via either method is accomplished one form file at a time. Uploaded or exported files will also include and affect all subforms that are used in the form; exception to subforms automatically being updated follow existing Intelligent Import rules skipping logos, headers, footers, comments, and dividers-. To move form modifications via the upload method right-click on the form in the Form Editor tree and select Upload Form to Master. Changes will propagate from the master to field databases at the next synchronization. Form deletions made in the Development Database will not get pushed to the master database. To inactivate a form in the master database (remove from available forms to be added to a Job)right-click on the form in either the development or master database form editor tree and select Retire Form. If a form is retired in the Development Database and you want to push this change to the master database you must go to View > Form Folder Options > View Retired Only, then right-click on the form and select Upload Form to Master.

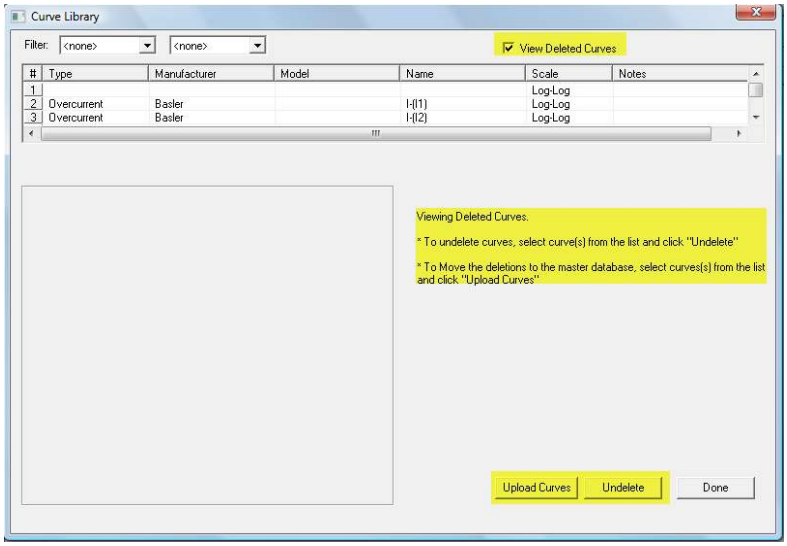
Changes made in the Development Database Subform Editor must be uploaded to the master database using Database Utilities or by exporting the .pxd file of the modified subform. This is accomplished one subform file at a time unless the subform is included in a form that is uploaded. Right-click on the subform in the Subform Editor tree and select Upload Subform to Master. Changes will propagate from the master to field databases at the next synchronization. Subforms cannot be viewed or tested outside of the Development Database. Deletions in the Development Database cannot get propagated to the master. You can make form and subform deletions in the master database.

When saving a change to a form or subform the dialog below will display. This provides a means to track who, what, when and why forms and subform changes are made. Completing this window is optional and you will be able to save your changes in any case.



To view information tracked in the dialog above open and run Form Update Report in the _Reports and Administration/Report form family the form editor tree.

Changes made to the Curve Library must be uploaded to the primary database. You may select one, multiple or all curves, to be added or deleted. Changes will propagate from the master to field databases at the next synchronization. To delete curves in the Development Database and affect this change in the master database go to View > Curve Library, check the box for View deleted Curves, select the curves to delete and click the Upload Curves button.

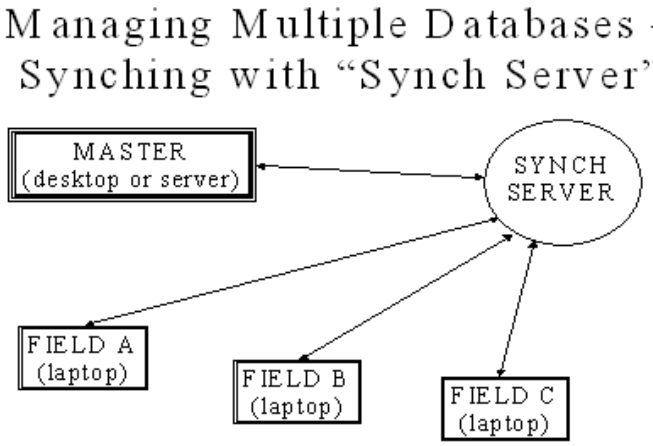

Curve Library
Filter:
<none>
<none>
View Deleted Curves
Type Manufacturer Model Name Scale Notes
1 Log-Log
2 Overcurrent Basler I-(I1) Log-Log
3 Overcurrent Basler I-(I2) Log-Log
Viewing Deleted Curves.
* To undelete curves, select curve(s) from the list and click "Undelete"
* To Move the deletions to the master database, select curves(s) from the list and click "Upload Curves"
Upload Curves
Undelete
Done

You may also make changes to User Accounts in a Development Database, field or master database. If changes are made in the Development Database maintain the user accounts as required, right-click in the User Account list and select Upload User Accounts. All User Accounts will move in their entirety as a single file. After the User Account upload is finished, a Configuration Synchronization is run automatically to synchronize the changes back down to the secondary database.

You can test your form, subform and curve library changes in the development database. For example you can create jobs and add results but these job records can never be moved outside of the Development Database.

8. Synchronization Server

The PowerDB Synchronization Server allows users to synchronize data between a master database and field databases. The Synchronization Server is beneficial for transferring data between computers with PowerDB whether in the office, between offices, in the field, or from the field to the office. Transferring data without using the Synchronization Server (i.e., specifying a path to the primary database) means that all database access will take place across the network; thus database queries to determine what information to transfer are slowed by the network speed. The Synchronization Server is a client/server solution to this problem. When a PowerDB Synchronization Server handles the primary database, then database queries are divided between the two computers and only data requests and data are sent along the network.



1. **Install PowerDB on a machine accessible to all who will need to access** the primary database. This machine will continuously run the PowerDB Synchronization Server. If you would like to transfer data outside your local area network, then the machine must have Internet access, a fixed IP address, and your firewall must have the following ports open: 25000 for UDP, and 25001-25015 for TCP.

2. **Determine where your master database is located.** If you are just getting started with PowerDB then the *powerdb.mdb* file in your installation directory will be your master database. If you already have data in a master database, then move the database to this machine. Your master database can reside in any directory you like, but it should be located on the *Server* machine. If you place the master database on another machine then many of the speed benefits of the PowerDB Synchronization Server are negated.

3. **Run and license PowerDB on the *Server* machine.** Use the 'File > Change Database' menu item to select your master database.

4. **Create a field database** using the 'File > New Database > New Field DB' menu item. All field databases must be created from your master database.

5. **Install and license PowerDB** on your laptops or other office machines.

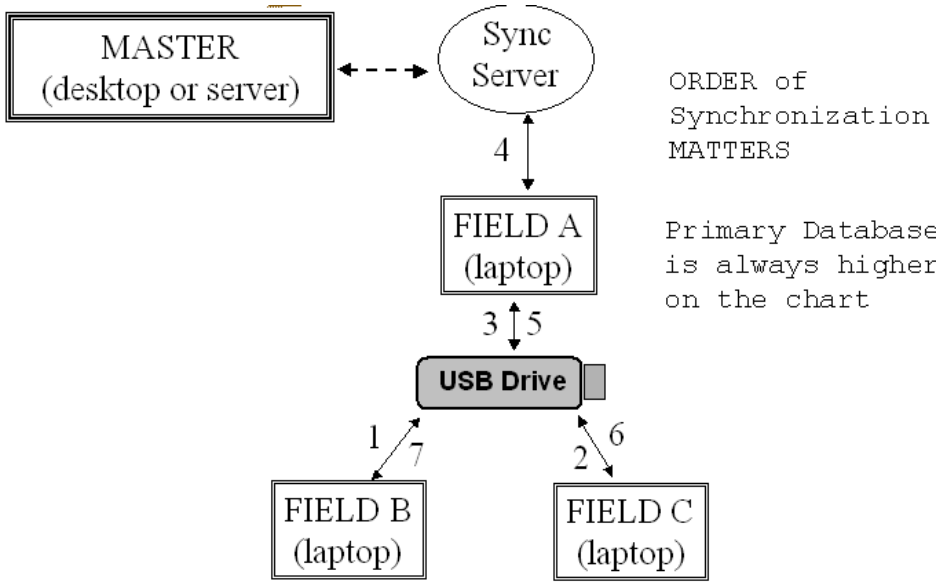
6. **Copy the field database** that you created in step 4 to each of your laptops or other office machines. Run PowerDB on each of these machines and use the 'File > Change Database' menu item to select the local field database. It is important that the field database reside on the machine running PowerDB in order to gain all speed benefits of using the PowerDB Synchronization Server.

7. **Start the Synchronization Server on the *Server* machine**; i.e., the machine that has the master database. This is done by running `pdbsynch.exe /server` in the installation directory (by default the installation directory is C:\Program Files\PowerDB, Inc.\PowerDB\). It is recommended that you put a shortcut in the Startup group.

8. **Select the master database for the Synchronization Server** by using the browse button next to the 'Database:' edit box.

9. **Check the 'Quick Start' checkbox.** This causes the synchronization server to start automatically when launched. To cancel a Quick Start you can click on any control in the Synchronization Server dialog during the first couple of seconds after it is launched.

10. **Press the 'Start Server' button.** The server start time is indicated, and the Synchronization Server is now listening for requests.



9. Administration

The Administration portion of PowerDB controls the software configuration. Accessibility to various actions throughout the application is restricted in Administration via User Account privileges.

9.1. User Accounts

User Accounts allow users to have access to PowerDB. Access to different system functionality can be set for each user by the privilege level assigned.

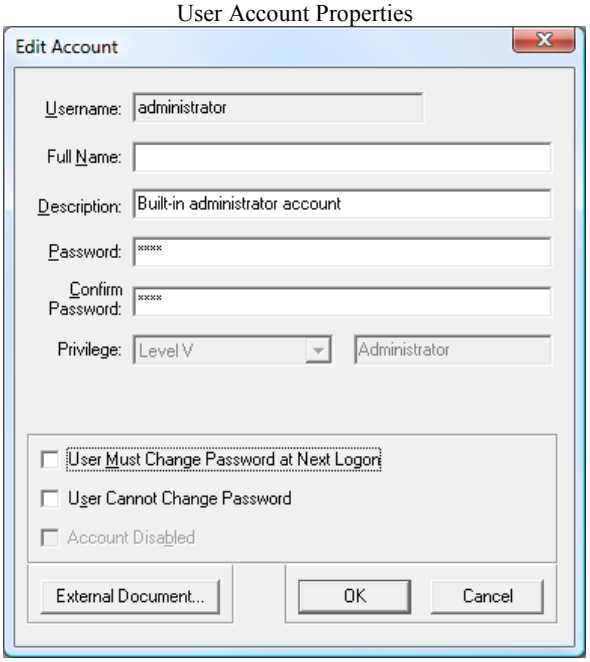
9.1.1 Account List

The Account List can be accessed by choosing 'User Accounts' from the View menu. The Account List displays current user accounts. The administrator account is a built-in account and may not be removed.

9.1.2 Account Properties

The Account Properties dialog can be accessed by right clicking on an account and choosing 'Properties'. This allows users with the *Administrator* privilege level to edit account details, including password and user privilege level for other users.

User Account Properties



The restrictions for the different user levels are as follows:

	Administrator	Manager	Power User	User	Technician	Form Designer
Form Tree						
Create New	YES	NO	NO	NO	NO	YES
Edit	YES	NO	NO	NO	NO	YES
Delete	If not assoc. with asset	NO	NO	NO	NO	If not assoc. with asset
Retire / Reinstate	YES	NO	NO	NO	NO	NO
Move	YES	NO	NO	NO	NO	YES
Merge	YES	NO	NO	NO	NO	YES
Preview Mode	N/A	YES	YES	YES	YES	N/A
Sub-Form Tree						
Create New	YES	NO	NO	NO	NO	YES
Edit	YES	NO	NO	NO	NO	YES
Delete	YES	NO	NO	NO	NO	YES
Job List						
Create New Job	YES	YES	YES	YES	YES	NO
Edit Job Properties	If not completed	If not completed	If not completed	only if creator	only if creator	NO
Delete Job	YES	Yes - F1	Yes - F1	NO	NO	NO
"Complete" a job	YES	YES	NO	NO	NO	NO
Un-complete Job	YES	NO	NO	NO	NO	NO
Print a job report	YES	YES	YES	YES	NO	NO
Be designated as job manager	YES	YES	YES	NO	NO	NO

Job Tree	Administrator	Manager	Power User	User	Technician	Form Designer
Add Asset / Enter new data	YES - E1	YES - E1	YES - E1	YES - E1	YES - E1	NO
Edit existing data	YES - E1	YES - E1	YES - E1	Only if originator - E1 E2	Only if originator - E1 E2	NO
Delete Test Data	YES - E1 E2	YES - E1 E2	YES - E1 E2	Only if originator - E1 E2	Only if originator - E1 E2	NO
Remove Asset from job	YES - E1 E2	YES - E1 E2	YES - E1 E2	YES - E1 E2	YES - E1 E2	NO
View Completed	YES	YES	YES	YES	YES	NO

Exceptions and Future release notes:	
E1	Completed jobs may not be added to or removed from
E2	Alteration may be prevented by synchronization lock rule
F1	IN UPCOMING RELEASE: Delete will be limited to admin lvl if job is completed

Address Book	Administrator	Manager	Power User	User	Technician	Form Designer
Create New	YES	YES	YES	YES	YES	NO
Edit existing	YES	YES	YES	YES	YES	NO
Delete address	YES	YES	YES	YES	YES	NO
Delete Company	YES	YES	YES	YES	YES	NO

Configuration						
Alter system settings	YES	NO	NO	NO	NO	NO
Alter region names	YES	NO	NO	NO	NO	NO
Create new	YES	YES	NO	NO	NO	NO
Edit accounts	YES	YES	NO	NO	NO	NO
Delete	YES	YES	NO	NO	NO	NO
Change user password	YES	YES	Own Only	Own Only	Own Only	Own Only

9.1.3 Change Password

The current user's password can be changed by selecting 'Change Password' from the Tools menu. The Change Password dialog box will appear. A valid current password is required for the password to be changed. Forgotten passwords can be reset by a user with Administrator privilege level by editing the user account from the Account List.

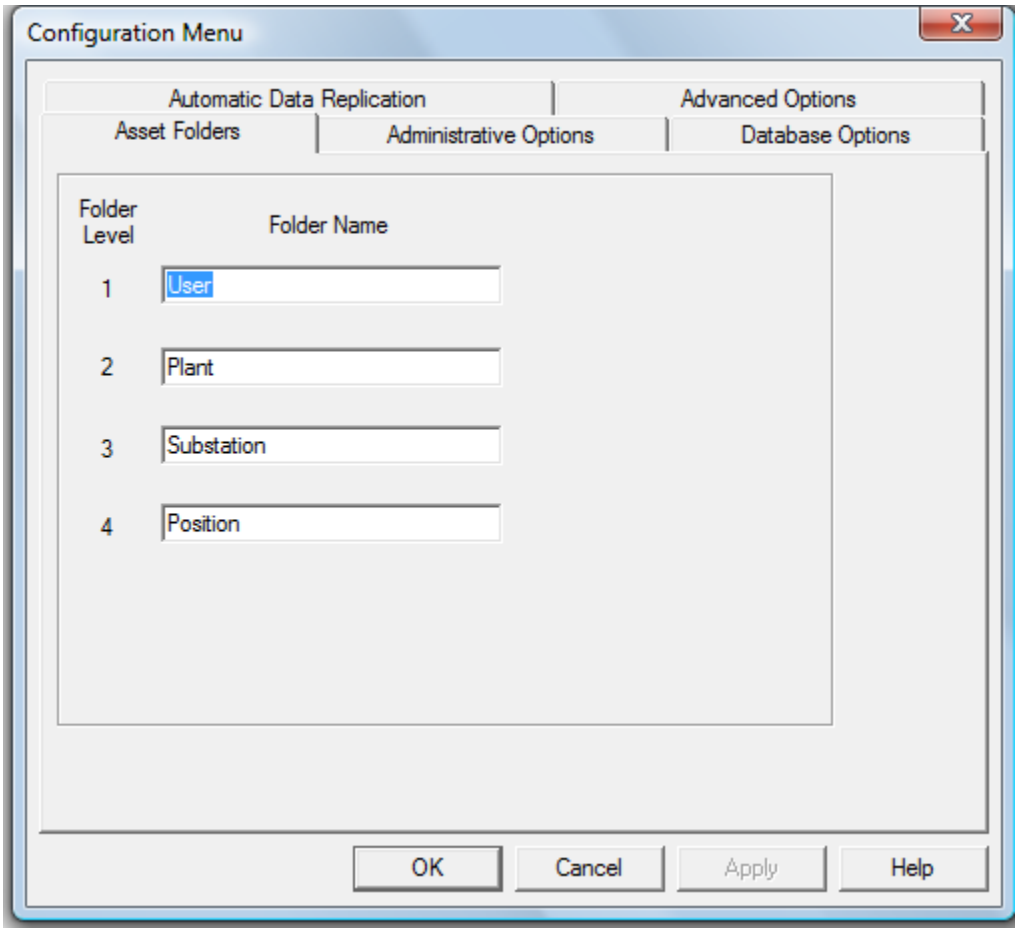
9.2. Configuration

The configuration options can be found by selecting 'Administration' from the Tools menu. The administrative properties are divided into five tabs: Asset Folders, Administrative Options, Database Options, Automatic Data Replication, and Advanced Options. Only a user with Administrator privileges may change these settings.

9.2.1 Asset Folders

An Administrator can customize the names of the asset folders which describe the asset location in the Job Tree or Asset Tree. You may leave folder names blank.

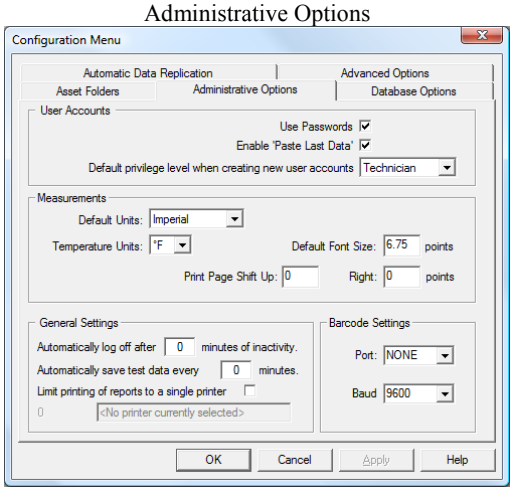
Asset Folders



9.2.2 Administrative Options

Within this tab an Administrator can change overall application settings.

Administrative Options



When the checkbox 'Use Passwords' is not checked then no password prompts are shown during logon. If the checkbox 'Use Passwords' is checked, then a password prompt is shown during logon.

Enabling 'Paste Last Data' allows test forms to be populated with the last results saved.

A default privilege level may be set for creating new user accounts.

Measurements settings allow the user to globally select Imperial or Metric in the application. Ambient temperature units will default to Celsius if Measurement Units are set to Metric. If Measurement Units are set to Imperial, ambient temperature units will default to the last selected units. The Default Font Size will affect the controls in the Form Editor.

The 'Automatically log off user after ## minutes of inactivity' option is disabled with a value of zero. If the value is a non-zero, then PowerDB will exit after the specified interval of inactivity. No test data will be saved unless specified in the auto-save feature.

The 'Automatically save test data every ## minutes' option is disabled with a value of zero. If the value is a non-zero, then test data will be saved to the database after the specified interval during data entry.

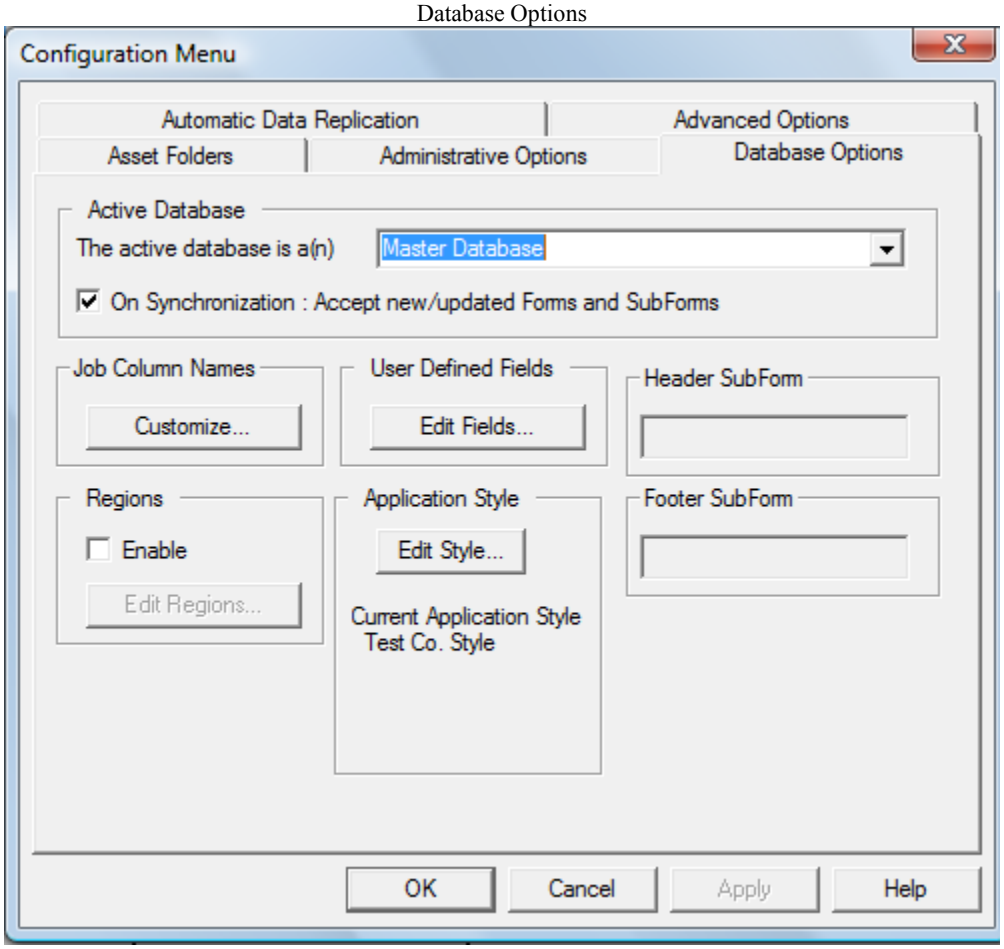
The 'Printer Limitation' option may be used to allow specifying a single printer to be used for printing reports. Users without administrator privileges will not be able to print from PowerDB to any other printer other than the one specified.

Barcode settings must be set to interface to a bar code scanner.

9.2.3 Database Options

The Database Options tab allows an administrator to specify if the active database is a master or field database. Note: Multi-license users should only have one master database.

Database Options



Enabling 'On Synchronization: Accept new/updated Forms and Subforms' will allow changes made outside of the master database to automatically overwrite the master database form and subform definitions during a synchronization. Please consider this carefully before allowing this setting.

Job Column Names can be customized by entering values in the Field Name column. It is suggested that you use fields indicated to be dates as date fields due to formatting.

You may Enable Regions to help filter your Job List and Address Book. If enabled, Jobs may be assigned to a region through Job Properties and company

address book entries may be assigned to a region. When viewing the Job List and Address Book you may filter your view by region.

User Defined Fields allows users to add additional custom sort fields. Refer to the Printing section of this document for further explanation.

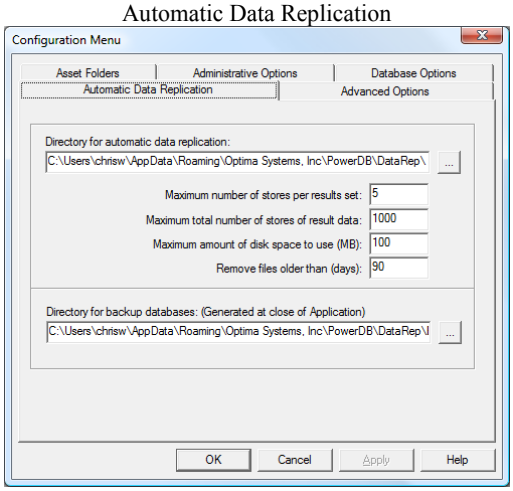
Application Style will assist you in your basic database configuration setup. This is not recommended to be changed after initialization.

You may set the header and footer subforms by name to be used globally.

9.2.4 Automatic Data Replication

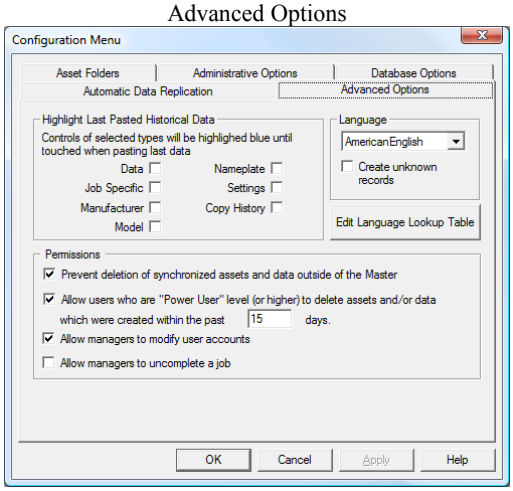
The Automatic Data Replication tab allows an administrator to change data backup settings. The directory for automatic data replication can be changed to another directory other than its default. Administrators can set the maximum number of backups that will be stored per result set, and the total number of stores of result data. Administrators can also limit the amount of disk space to use for backup, and automatically remove old files from the directory.

Automatic Data Replication



9.2.5 Advanced Options

Advanced Options



If the setting for Enable ‘Paste Last Data’ is selected then the control types checked in Highlight Last Pasted Historical Data will be highlighted blue until touched in Job data entry mode.

You may select the language for the application screens.

10. Designing Forms

Form and Subform editing must be done in a Development Database (refer to Section 7).

10.1. Forms Editor

The Forms Editor is used to create reports that will be used for entering and printing test data and field service reports. Some generic tools displayed include cut, copy, paste, and zoom in/zoom out which are indicated by the magnifying glass buttons. The 'Zoom to 100%' button snaps the display back to normal size in one step. The 'Fit to Width' button displays the form workspace with both left and right margins shown.

The Forms Editor allows for two views of the workspace. In the Design Mode, a ruler and a grid of tick marks are visible to aid in placing and sizing controls on the workspace. At the 100% zoom in Design Mode, the tick marks are spaced at 1/32" and the ruler is sized at 1/16". If you zoom out one increment, the tick marks are displayed at 1/16". The next increment out is again at 1/16" but allows more area to be visible. The next increment out is sized at 1/8".

In Test Mode, toggled with the 'Test' switch button in the tool palette, the form is displayed in page layout view. Entries or changes can be tested for input controls, check boxes and radio buttons.

While working in a form workspace, you can perform certain steps from right and left clicks of the mouse. While the mouse cursor is on the workspace area of a form, a right mouse click will display a short menu of choices. Click on Test to switch to the Test Mode. Click on Properties to open the Form Properties dialog box.

While the mouse cursor is on a control, double clicking will open the appropriate properties dialog box and shift double click will open the Script Editor. While the mouse cursor is on a control, a single left mouse click selects the control, which is confirmed by the display of the control handles. When the handles are displayed you can drag or resize the control. When a control is selected, a single right click will display a menu of options defined below.

- **Delete**

  Click 'Delete' to remove the control from the form workspace. A pop up box will appear to allow your choice to be changed before the delete action is executed. Click 'Yes' to delete or click 'No' to cancel the action.

- **Cut**

  The selected control will be removed from the workspace. It may be pasted back on this or another form by choosing the Paste option.

- **Copy**

  The selected control along with all its properties attributes will be copied.

- **Paste**

If Paste is selected following the Copy command, the replicated control will be displayed with its handles visible and will be slightly offset from the original control. This control can be moved to the desired location by dragging the pasted control.

- **Outline**

Outline will display a four-sided border around the selected control. Selecting Outline again will remove this border.

- **Underline**

Underline will display a single underline below the control. The appearance of this underline can be modified at the 'Borders' button of the properties dialog box. Selecting 'Underline' again will remove this feature.

- **Bring Forward**

When two controls overlap each other, you can define which control is made visible over top of another control.

- **Send Back**

When two controls overlap each other, you can define which control is made less visible behind another control.

- **Select Column**

Click in a single cell within a table column and then click 'Select Column'. This will select all adjacent cells as evidenced by their handles being visible. Cells may be deselected by clicking on the cell again.

- **Select Row**

Click in a single cell within a table row and then click 'Select Row'. This will select all adjacent cells as evidenced by their handles being visible. Cells may be deselected by clicking on the cell again.

- **Change Type**

Click Change Type to display a dropdown box. Click the down arrow to view and make your selections.

- **Edit Flyover Text**

Click a control and then select Edit Flyover Text from the right click menu. This will open an edit box to enter information to be viewed in the data entry mode of a Job. A user may view this text information in a Job by holding down the Shift key as they drag the cursor over the form.

- **Set Tag to Label**

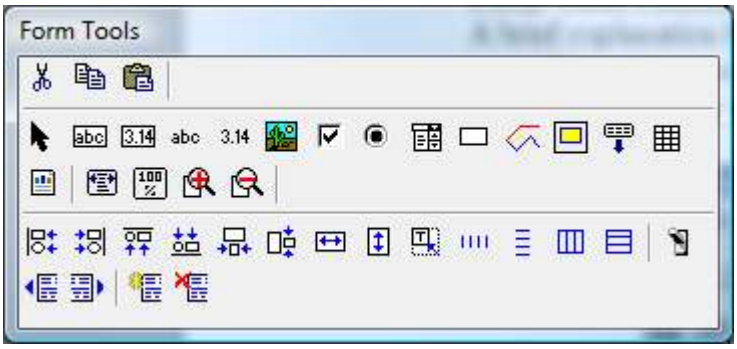
Select an even number of Read Only and Input controls then select the Set Tag to Label right click menu item to match the tag name of the input controls to the Read Only label control.

- **Properties**

Click Properties to view the appropriate properties dialog box.

Form Tools Palette

A brief explanation follows for the Form Tools palette buttons. This palette can be moved around the workspace by clicking in the upper title area and dragging. It can be resized by dragging any corner.



Form Tools Palette

- **Cut**

Left click on a control then click on the 'Cut' button. This will copy the control and remove it from the workspace.

- **Copy**

Left click on a control then click on the 'Copy' button. This will copy the control and all of its properties.

- **Paste**

After a control has been cut or copied, it can be pasted by left clicking the 'Paste' button. The control will appear slightly offset from its original position. It can be moved around the workspace by left clicking the control and dragging or by using the arrow keys.

- **Select**

The 'Select' button enables standard Windows mouse properties. Click and drag the mouse downward and to the right to select single or multiple controls or left click to select individual controls. Multiple controls can be selected by holding down the shift key and left clicking the desired controls.

- **Text**

Click on the 'Text' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a text control onto the form. Left clicking once and dragging the handles will resize the control.

- **Numeric**

Click on the 'Numeric' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a numeric control onto the form. Left clicking once and dragging the handles will resize the control.

- **Read Only Text**

Click on the 'Read Only Text' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a read only text control onto the form. Left clicking once and dragging the handles will resize the control.

- **Read Only Numeric**

Click on the 'Read Only Numeric' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a read only numeric control onto the form. Left clicking once and dragging the handles will resize the control.

- **Image**

Click on the 'Image' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop an image control onto the form. Left clicking once and dragging the handles will resize the image.

- **Check Box**

Click on the 'Check Box' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a check box control onto the workspace. To resize the check box, double click on the control to open the Check Box Properties dialog box. Deselect the standard size selection and click OK. Click and drag the control handles to the desired size.

- **Radio Button**

Click on the 'Radio Button' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a radio button control onto the workspace. To resize the radio button, double click on the control to open the Radio Button Properties dialog box. Deselect the standard size selection and click OK. Click and drag the control handles to the desired size.

- **Dropdown Box**

Click on the 'Dropdown Box' button. The mouse cursor will appear as a crossbar on the workspace. Left click once on the workspace to drop a dropdown box control onto the workspace. Left clicking once and dragging the handles will resize the dropdown box control.

- **Rectangle**

Click on the 'Rectangle' button. The mouse cursor will appear as a crossbar on the workspace. Click and drag downward and to the right to outline the area to be designated as a rectangle. Additional items may be added within the perimeter of the area outlined by the rectangle, such as a text control or an image.

- **Sub-Form**

Click on the 'Sub-Form' button. The mouse cursor will appear as a crossbar on the workspace. Click and drag slightly downward and to the right to designate the position of the upper left corner of a preexisting sub-form.

- **Group Grow**

Click on 'Group Grow' button. The mouse cursor will appear as a crossbar on the workspace. Click and drag downward and to the right to outline the area to be designated. This locates fields ending in an underscore followed by a number(_#). Then it finds the next existing and adds it into the group.

- **Chart**

Click on the 'Chart' button. The mouse cursor will appear as a crossbar on the workspace. Click and drag downward and to the right to outline the area to be designated to insert a chart.

- **Table**

Click on the 'Table' button. The mouse will appear as a crossbar on the workspace. Click and drag to open the Table Wizard dialog.

- **Align Left**

Click on two or more controls and then click on the 'Align Left' button. This will left-align selected controls with the control selected last. Selected controls will overlap if not vertically separated.

- **Align Right**

Click on two or more controls and then click on the 'Align Right' button. This will right align selected controls with the control selected last. Selected controls will overlap if not vertically separated.

- **Align Top**

Click on two or more controls and then click on the 'Align Top' button. This will top align selected controls with the control selected last. Selected controls will overlap if not horizontally separated.

- **Align Bottom**

Click on two or more controls and then click on the 'Align Bottom' button. This will bottom align selected controls with the control selected last. Selected controls will overlap if not horizontally separated.

- **Align Horizontal Center**

Click on two or more controls and then click on the 'Align Horizontal Center' button. This will horizontally align selected controls with the control selected last. Selected controls will overlap if not horizontally separated.

- **Align Vertical Center**

Click on two or more controls and then click on the 'Align Vertical Center' button. This will vertically align selected controls with the control selected last. Selected controls will overlap if not vertically separated.

- **Make Same Width**

Click on two or more controls or table cells and then click on the 'Make Same Width' button. This will resize the width of selected controls or same row table cells to the width of the control selected last.

- **Make Same Height**

Click on two or more controls or table cells and then click on the 'Make Same Height' button. This will resize the height of selected controls or same column table cells to the height of the control selected last.

- **Size To Content**

Click on two or more controls or table cells, then click on the 'Size to Content' button. This will increase or decrease the size of the control or table cells to fit the size of its content.

- **Evenly Space Horizontally (in pairs if shift)**

Drag the mouse to select multiple controls on the workspace, then click the button to evenly space the controls horizontally within the perimeters of selected range. To evenly space pairs of controls, hold down the shift key and click the button to match the spacing between subsequent pairs to the spacing of the first pair.

- **Evenly Space Vertically**

Drag the mouse to select multiple controls on the workspace, then click the button to evenly space the controls vertically within the perimeter of the selected range.

- **Resize Table Horizontally**

Click the button to equally resize selected columns or an entire table.

- **Resize Table Vertically**

Click the button to equally resize selected rows or an entire table.

- **Previous Page**

Left click the 'Previous Page' button to move back one page in a multi-page form.

- **Next Page**

Left click on the 'Next Page' button to move forward one page in a multi-page form.

- **Add Page**

Left click on the 'Add Page' button to add a page at the end of the form.

- **Delete Page**

Left click on the 'Delete Page' button to delete a page from a multi-page form. The first page of a form may not be deleted.

- **Test**

Click on the 'Test' button to display the form in the Test Mode. Click on the 'Test' button again to return to the Design Mode.

10.1.1 Form Properties

Within a form workspace, right click to display the context menu. Click on 'Properties' to display the Form Properties dialog box.

- **Background Image**

A bitmap can be imposed on the form as a background image to assist in forms creation and data placement. Entering positive or negative values in the X Offset and Y Offset boxes can shift the background image alignment. If the 'Only for Design' box is checked, this image will only appear when working in the Design Mode. If the 'Stretch to Fit' box is checked, the background image will be stretched to fit the form. To reduce data storage requirements it is recommended that the background image be removed after the form design is complete.

- **Dimensions**

This defines the size of the form. A standard size form can be produced in landscape orientation by reversing the height and width measurements.

- **Margins**

This defines the margins of the form. The margins are displayed when designing a form as a guideline for control placement.

- **Maximum Calculation Depth**

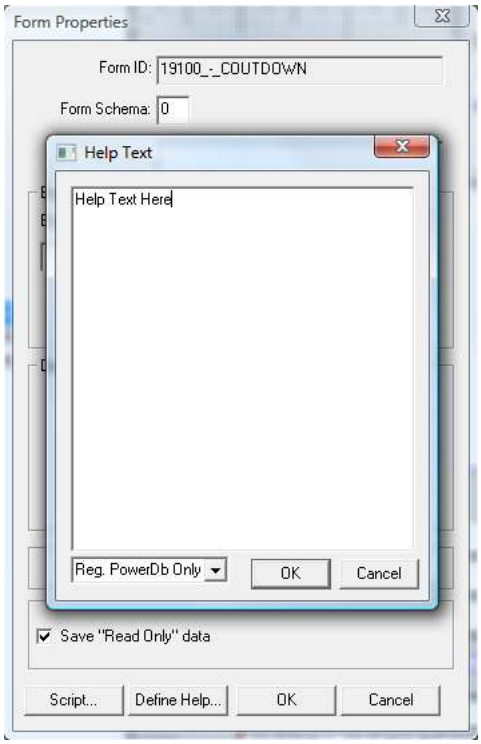
This defines the number of levels of calculation dependency. For example, if field tag 'B' is based on tag 'A', and tag 'C' is based on tag 'B', then a depth of three is sufficient to propagate the calculations. This is the number of times that the calculations will be carried out.

- **Scripts**

Clicking the 'Scripts' button opens the Script Editor Dialog Box. The scripting language used is Microsoft VBScript, which is a subset of Microsoft Visual Basic.

- **Define Help**

PowerDB allows you to populate help screens for assisting users with instructions specific to the form.



10.1.2 Form Controls

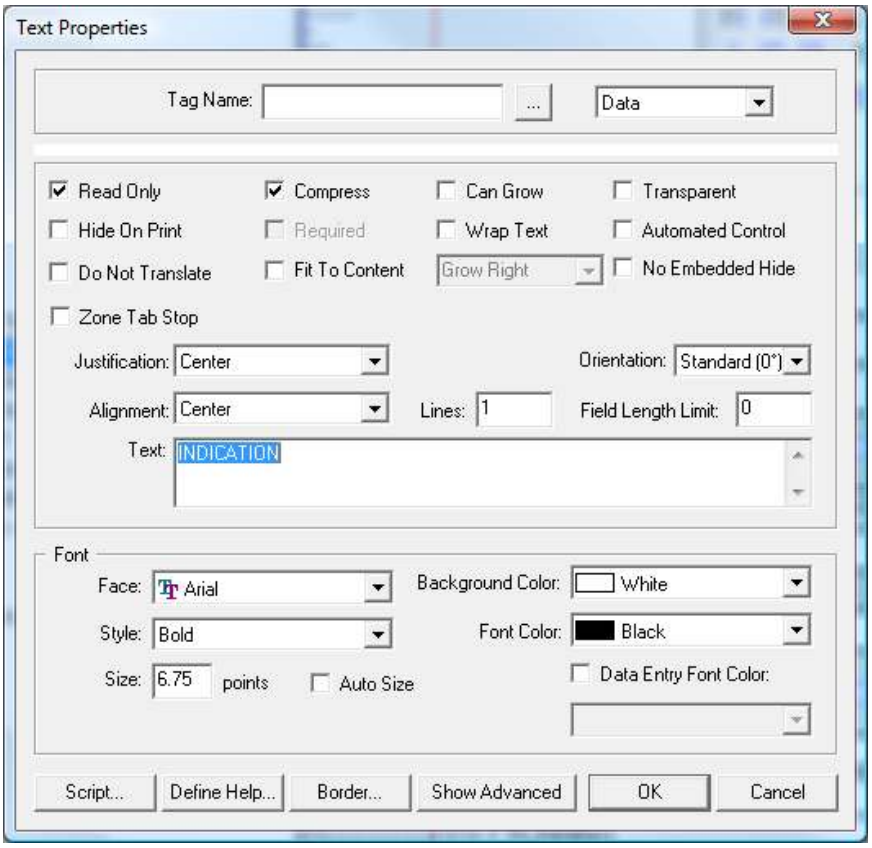
Workspace coordinates are displayed on the status bar in the lower left corner of the screen as the mouse cursor moves around the workspace. Holding down the *Ctrl* key while moving the mouse around the workspace causes details to be shown on the status bar for the particular control under the mouse cursor.

Form controls identify their data via "tag names" specified in the control properties dialogs. Each control to receive input or be used in a calculation must have a unique tag name. If a duplicate tag name is used in the same form, a warning is displayed when the form is saved or loaded. A tag name may be located on the form by selecting Show Tag Names of Find Control from the right-click menu in form design.

10.1.2.1 Text Control

To create a text control on the form workspace, click on the 'Text' button on the Form Tools palette. The mouse cursor will change from an arrow to a

crossbar. Click and drag to establish the size of the text control. Double click within the text control to display the Text Properties dialog box. Click in the first dropdown box to specify the classification of the control data. Dropdown lists are displayed for text justification, alignment within the text box, and orientation. Font selections are made in the lower portion of the dialog box.



Text Properties

If a text control is checked to be 'Read Only' the data entered in the Text area will be displayed on the form as entered in the dialog box. If a tag name is specified for a read-only field, then the value displayed may be changed via scripting. The 'Lines' field defines the number of text lines displayed.

If the text control is not checked to be 'Read Only' it is designated as an input control. A 'Field Length Limit' number other than '0' will truncate the input data displayed.

10.1.2.2 Numeric Control

To create a numeric control on the form workspace, click on the 'Numeric' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the size of the numeric control. Double click within the numeric control to display the Numeric Properties dialog box. Click in the first dropdown box to specify the classification of the control data. Dropdown lists are displayed for text

justification and alignment within the numeric control. Font selections are made in the lower portion of the dialog box.

Numeric Properties

If a numeric control is checked to be 'Read Only' the data entered in the Value area will be displayed on the form as entered in the dialog box. If a tag name is specified for a read-only field, then the value displayed may be changed via scripting.

If the numeric control is not checked to be 'Read Only' it is designated as an input control. The editor will ignore any input that is other than numeric.

The Data Type dropdown list provides Boolean, integer or float as allowable data type designations. If float is selected, the decimal place accuracy and show trailing zeros options are enabled. If float or integer is selected, a minimum and maximum range can be specified. An entered value outside of this range will create a warning message. If Boolean is selected, the value will be true or false. If anything other than false is entered into the Value field, the value will be true. The Minimum Value and Maximum Value fields are disabled when the Boolean data type is selected. When a Boolean control is edited in Test Mode, clicking on it will toggle the value between true and false.

10.1.2.3 Image Control

To place an image on the form workspace, click on the 'Image' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the upper left corner of the image. Double click within the image control to display the Image Properties dialog box. Click in the first dropdown box to specify the classification of the control data. By clicking the 'Insert' button, a dialog box will pop up enabling you to browse for a .bmp, .gif or .jpg image file. After selecting a file, the image may be changed by pressing the 'Browse…' button and searching for a new image. To delete an image, simply press the 'Delete' button. By enabling the Stretch to Fit property, the image will resize to fit in the given area of the image control. If this property is not enabled, the image will remain full size and some clipping may occur. If the image is not read only and the 'Select during data entry' option is chosen, an image file can be chosen during data entry. Images are enumerated in the order they appear in the Image Properties Dialog, starting with zero. For example, if the tag is equal to '2' then the third image in the list is displayed.

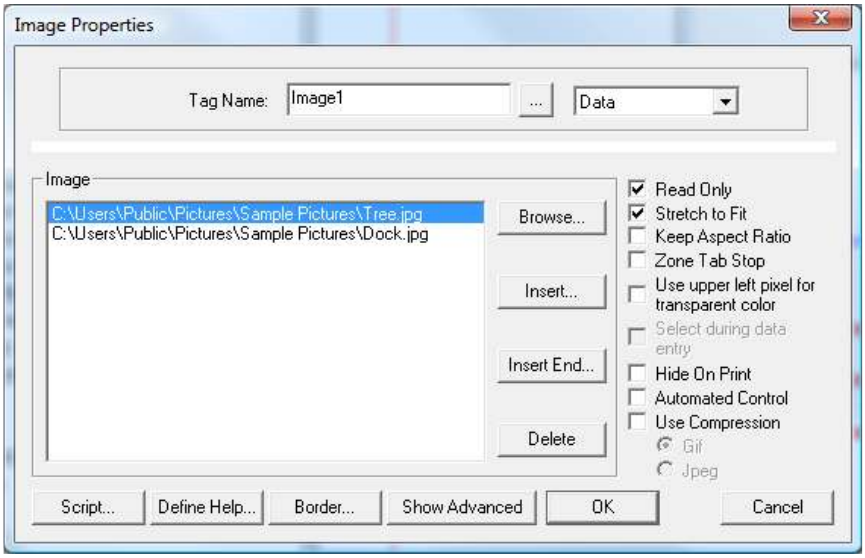
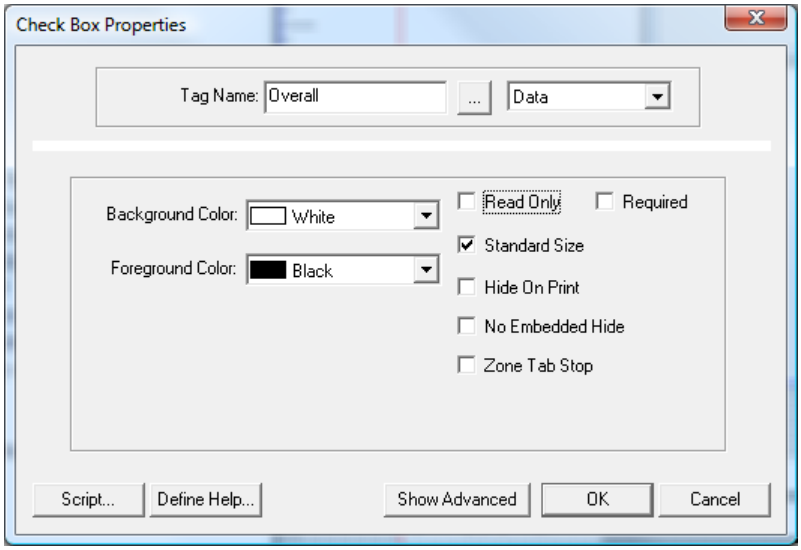


Image Properties

10.1.2.4 Check Box Control

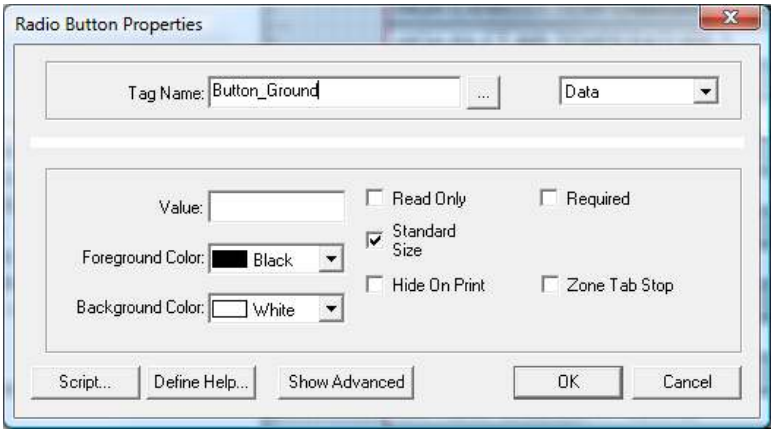
To create a check box on the form workspace, click on the 'Check Box' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the check box control. Double click within the check box control to display the Check Box Properties dialog box. Click in the first dropdown box to specify the classification of the control data. If the check box is not designated as read only, it will be designated as an input control. The standard default size of the check box can be modified by unchecking the 'Standard Size' check box, clicking the 'OK' button, and then dragging the handles of the check box to the size desired.



Check Box Properties

10.1.2.5 Radio Button Control

A radio button control should be used when a single selection among a grouping of mutually exclusive items is required. To create a radio button on the form workspace, click on the 'Radio Button' button on the Form Tools palette. The mouse will change from an arrow to a crossbar. Click and drag to establish the location of the radio button control. Double click within the radio button control to display the Radio Button Properties dialog box. Click in the first dropdown box to specify the classification of the control data. All radio buttons controls within a single grouping should be given the same tag name. Each individual radio button control within a grouping should be given a unique Value identifier. The standard default size of the radio button can be modified by unchecking the 'Standard Size' check box, clicking the 'OK' button, and then dragging the handles of the radio button to the size desired.

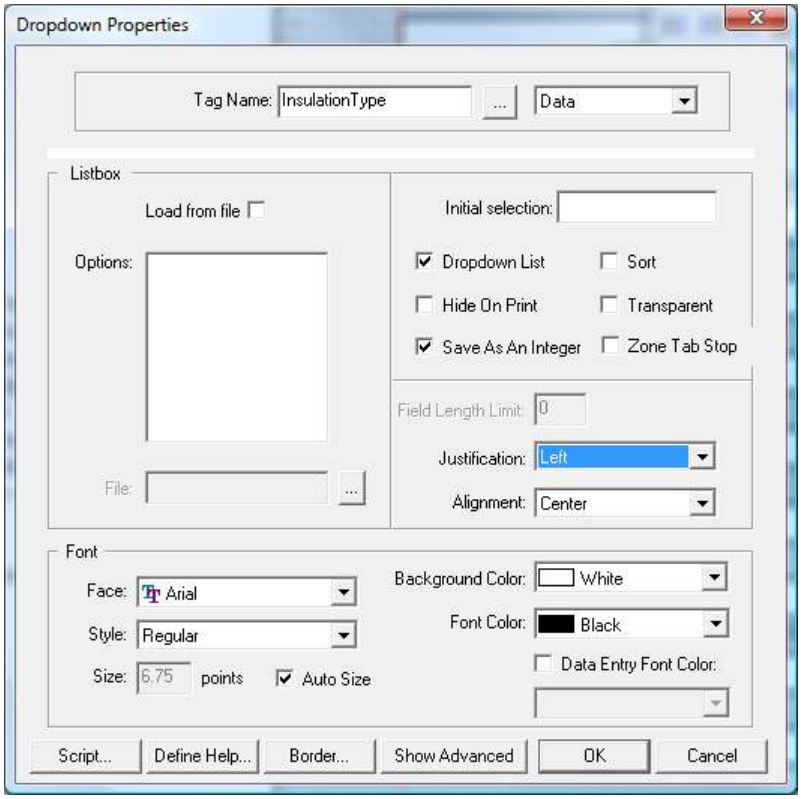


Radio Button Properties

10.1.2.6 Dropdown Box Control

A dropdown box should be used when a predetermined selection list is to be provided. To create a dropdown box on the form workspace, click on the

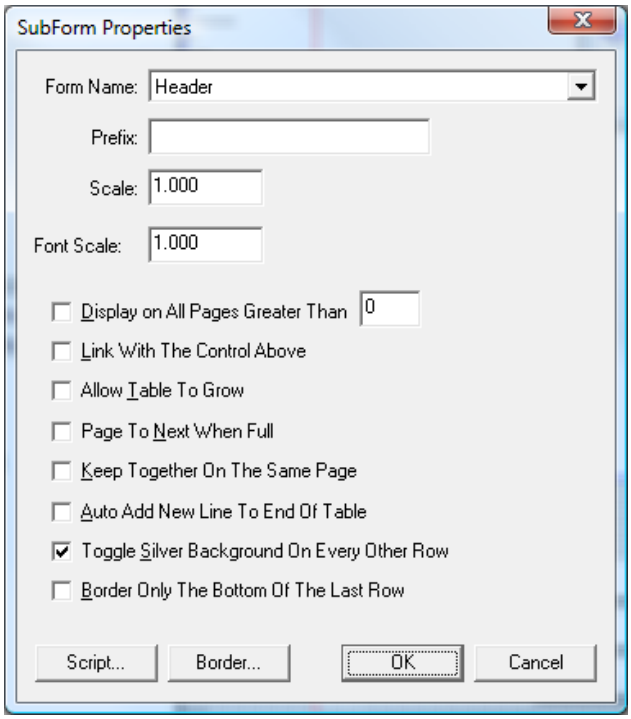
'Dropdown Box' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the dropdown box. Double click within the dropdown box to display the Dropdown Box Properties dialog box. Within the List Box Options area of the dialog box, enter the selections allowed. Selecting the Sort check box will sort the listing in ascending order. Selecting the Dropdown List check box will limit entry only to items listed in the List Box Options. A dropdown control can be populated from a file located in the PowerDB installation directory by checking 'Load from file' and specifying the file name.



Dropdown Properties

10.1.2.7 Sub-Form Control

Sub-Forms are created in the Sub-Form section of the software. To place one of these sub-forms onto a form workspace, click on the 'Sub-Form' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the upper left corner of the sub-form. Double click within the sub-form control to display the Sub-Form Properties dialog box. Click the down arrow to display a listing of sub-forms created as sub-forms. Click on the desired sub-form to place it on the form workspace, and then click OK. The outline of the sub-form will be displayed. Dragging the field can move the location of the sub-form. The size, content or appearance of the sub-form can only be changed in the Sub-Form. Any changes made to a sub-form will be reflected in all forms where the sub-form is used.



Sub-Form Properties

While in form design mode you can jump to a subform by pressing the Ctrl key and double-clicking on the subform. Click on the Form Editor toolbar icon to return to the form design. Subforms may contain tables which can be designed to 'grow' as data is entered. For these controls select to Link With The Control Above and Allow Table To Grow. Refer to the Forms Design FAQ under the Help menu for further instructions.

10.1.2.8 Chart Control

To create a chart on the form workspace, click on the 'Chart' button on the Form Tools palette. The mouse cursor will change from an arrow to a crossbar. Click and drag to establish the location of the chart. Double click within the chart field to display the Chart Properties dialog box. Tabs for Chart Setup, Trace Setup, and Lines are shown. Tags to retrieve the X-axis and Y-axis data can be specified for each trace from a created table in the following format:

`tagname#!from:to`

The pound sign specifies where the number to iterate is located within the tag. The exclamation mark specifies the end of the tag name. The iteration range is specified by *from*:*to*. For example, `OpTime_#!1:5` retrieves data from the tags OpTime_1, OpTime_2, OpTime_3, OpTime_4, OpTime_5.

The 'Lines' tab is designated in order to assign a tag name to a horizontal or vertical line. In addition, the scale group control is utilized when the Y-axis represents data of different scales and need to be grouped.

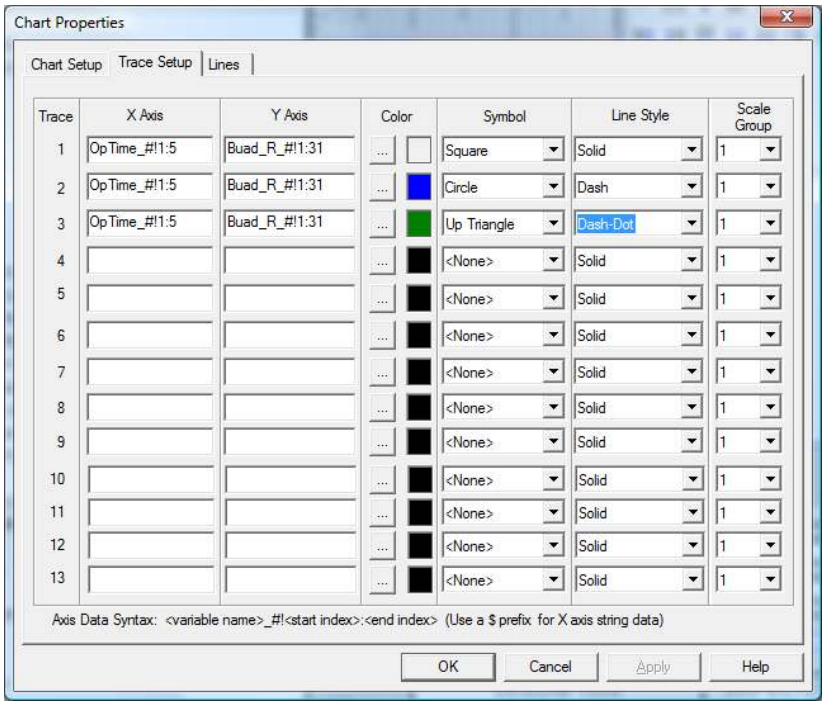


Chart Properties

10.1.3 Multiple Item Properties

Multiple controls may be selected by holding down the shift key while left clicking the desired controls, or by click-and-dragging a "rubber band" around the items. After clicking the last desired control, right click to display a menu of options to modify the selected controls. Select 'Properties' to open the Multiple Item Properties dialog box. Various tabs are displayed to modify the contents of all the controls selected.

- Tag Name / Clear Tag Name

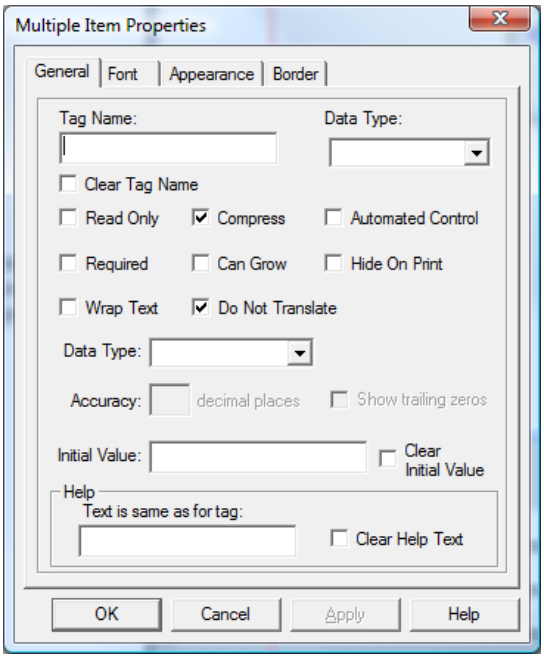
You may set or clear the tag names of multiple controls. You may set the tag name numerical sequencing of multiple controls by using the following syntax in the Tag Name field.

Text##Text – Numerically sequences tag names starting at 1
Text##Text<5> – Numerically sequences tag names starting at 5

- Initial Value

You may set the text or numeric value to display in multiple controls by entering data in the Initial Value field. You may add numerical sequencing to multiple controls by using the following syntax in the Initial Value field.

- Numerically sequences the controls starting at 1
##<5> - Numerically sequences controls starting at 5



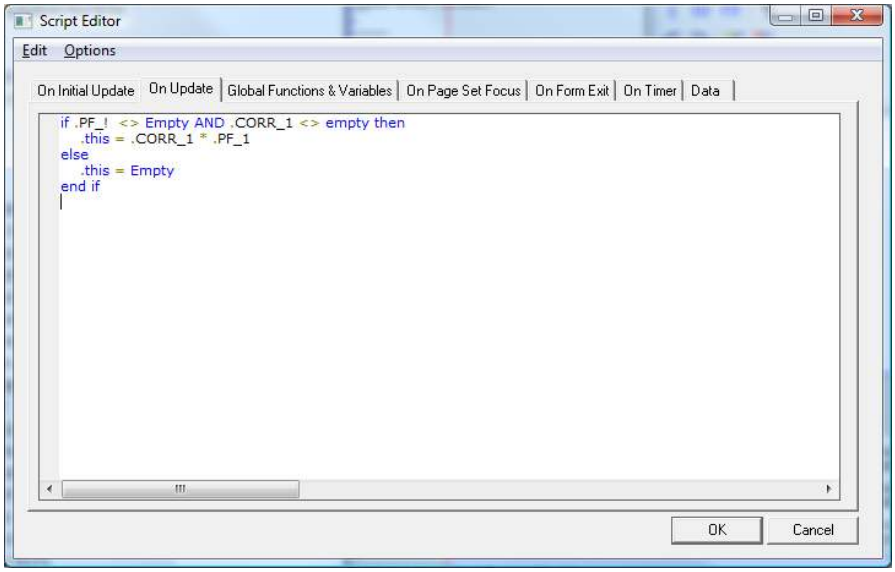
Multiple Item Properties

10.1.4 Scripts

Scripts are a set of instructions which define calculations using given data or which carry out tasks that are repetitive. Scripts are useful when data in one field affects data in another field. The Script Editor uses the VBScript engine to process the code.

10.1.4.1 Control Script Editor

While in design mode, the Script Editor dialog box may be opened by shift double clicking the control or by going to the control's properties and clicking the 'Script' button.



Control Script Editor

The following five tabs are displayed in the dialog box and their functionality is defined below:

- **On Initial Update**

The very first time the form is opened the scripts in these controls will be carried out.

- **On Update**

Every time there is any type of change on the form the scripts in these controls are carried out.

- **On Select**

Every time a control with an On Select script is selected the respective scripts are carried out.

- **On Enter**

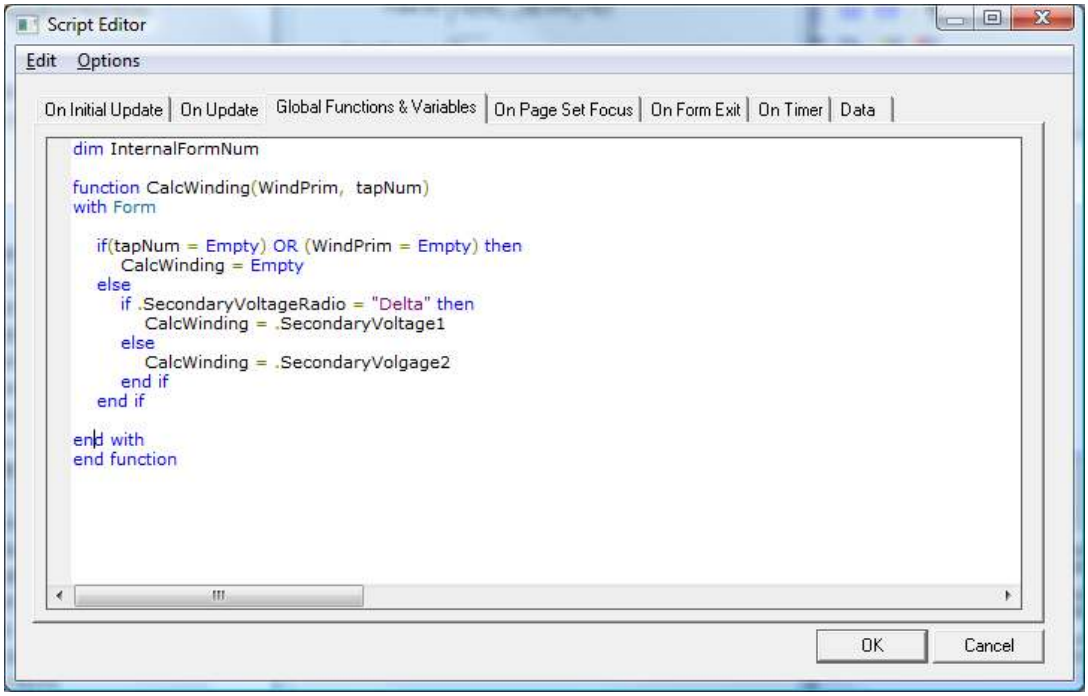
On Enter scripts are automatically run when the form is initially loaded (for the purpose of initializing dependent calculations) and also when controls that contain these scripts are modified. Controls that have this property will carry out the scripts when the respective field has data entered in to it.

- **On Right Click**

On Right Click scripts are run when the control is right clicked.

10.1.4.2 Forms Script Editor

While in Design mode, the Script dialog box may be opened by going to the Form Properties dialog box and clicking the 'Script' button or by going to the File menu and selecting Properties. The purpose of the Forms Script Editor is to write scripts and functions that are common throughout the form. The scripts can be copied and pasted when multiple controls are selected by selecting Copy Scripts from a control's right click menu. Then these scripts can be pasted by Shift selecting the control in the bottom right corner and selecting Paste Scripts from the right click menu.



Form Script Editor

The following seven tabs are displayed in the dialog box and their functionality is defined below:

- **On Initial Update**

The very first time the form is opened in Test Mode, the scripts in these controls will be carried out.

- **On Update**

Every time there is any type of change on the form in Test Mode, the scripts in these controls are carried out.

- **Functions**

This tab contains functions that will be repeated within the form and variables that can be used within scripts throughout the form. When working within the functions, controls within the form must be referred to by putting a 'Form.' before the tag name.

- **On Set Page Focus**

The scripts in these controls are carried out the first time that the page receives focus.

- **On Form Exit**

When a form is exited, the scripts in these script controls are carried out.

- **On Timer**

The scripts in these script controls are carried out every second.

10.1.4.3 Global Script Editor

Global functions may be accessed by opening the Tools menu and selecting Global Functions, or by simply pressing *Ctrl+F9*. The purpose of the Global Script Editor is to write functions and constants that are common throughout multiple forms.

The following two tabs are displayed in the dialog box and their functionality is defined below:

- **Global Functions**

User-defined common functions and constants are written here so that they may be used throughout various forms.

- **Standard Functions**

Standard Functions are predefined functions that may be used in any of the forms, but may not be edited by the users. These functions include a divide function with error handling, and the functions to facilitate looking up values from Comma Separated Value (*.csv) files.

10.1.5 Table Wizard

Clicking the 'Table' button on the Form Tools palette starts the Table Wizard. The mouse cursor will appear as a crossbar on the workspace. The overall size of the table can be outlined by dragging the cursor downward and to the right, or precisely sized within the first dialog box of the wizard.

- **Sizes Dialog Box**

A precise overall size for a table can be defined in the Width & Height fields. If the 'Use Existing Sizes' check box is selected, the area previously drawn by dragging the mouse will determine the table size. The number of rows and columns is defined in the right hand portion of this box. If the 'Grow Table as Necessary' checkbox is selected, the wizard will resize the table to fit the font size selected. Select the 'Next' button to proceed with the wizard.

- **Row Settings Dialog Box**

The height of the table rows will default to be evenly sized within the dimensions previously defined. If the 'Sizes Set Individually' radio button is selected, a dropdown box will allow each row height to be set individually. Select the 'Next' button to proceed with the wizard or the 'Back' button to return to the previous step.

- **Column Settings Dialog Box**

The width of the table columns will default to be evenly sized within the dimensions previously defined. If the 'Sizes Set Individually' radio button is selected, a dropdown box will allow column widths to be set individually. Select the 'Next' button to proceed with the wizard or the 'Back' button to return to the previous step.

- **Type Selection Dialog Box**

A dropdown list allows you to specify the type of field the table cells are to be created as. Select the 'Finish' button to proceed with the wizard or the 'Back' button to return to the previous step.

- **Properties Dialog Box**

Depending upon the type selected in the previous step, the appropriate properties dialog box will appear to further define the table cell contents. After completing this dialog box, click 'OK' to create the table.

10.1.6 Border Style

Border styles and color can be set for most controls selections on the Form Tools palette. A border width of 0 will be invisible. A corner radius of 0 will be right angles. Manipulating the corner radius values it will smooth the corners of the control. A 3-D option is also available.

10.1.7 Zoom

To increase the form workspace area visible on the screen, click on the 'Zoom Out' button in either the Design or Test Mode. There are three levels in addition to 100%. To decrease the visible area down from an enlarged display, click on the 'Zoom In' button in either the Design or Test Mode. To snap back to the standard size in a single step, click on the 'Zoom to 100%' button. To view the left and right borders, click on the 'Fit to Width' button.

10.1.8 Full Screen

To view forms on the entire screen while on the Asset or Job trees select the Full Screen option from the view menu. The full screen option can also be reached by clicking the Full Screen icon on the toolbar.

10.1.9 Alignment

Alignment of controls or table cells can be performed by selecting the areas by clicking each control while holding down the shift key and then clicking on the desired tool palette button. Controls will be aligned with the last control selected. Dragging the mouse to surround the desired controls and then clicking on the desired tool palette button can also perform alignment. This second method will align the controls with the lowest most field in the area selected. Controls that have been selected will appear with their handles (eight small solid boxes at the corners and borders) to be visible. A control may be deselected by shift-clicking

on it again. To cancel an entire selection, click in a blank area of the form workspace.

10.1.10Control Sizing

To determine the size of a control or table cell, click on the control to reveal its handles. If not all handles are visible, a portion of the control might be hidden behind another. Selecting the control to reveal its handles can change the size of a control or table cell. After selecting a control, if the crossbar appears with four arrows, dragging the mouse will move the entire control. If the crossbar changes to a single line with two arrows along an outside edge, dragging this will only affect the edge selected. If the cursor arrow changes to an angled single line with two arrows, dragging this corner handle will affect both the height and width of the control.

Within a table, you can select individual cells, an entire row or an entire column to be resized. Multiple cells can be selected by clicking them while holding down the shift key. To quickly select an entire row or column, click a cell in the row or column, then right-click to display the context menu. Choose 'Select Row' or 'Select Column' from the menu. The height or width of interior rows or columns can be increased or decreased by dragging the single line arrow found at the center of the selected area border. The adjacent row or column will increase or decrease accordingly without affecting the overall size of the table. Selecting an outer row or column will change the outside dimension of the table.

10.1.11Pages

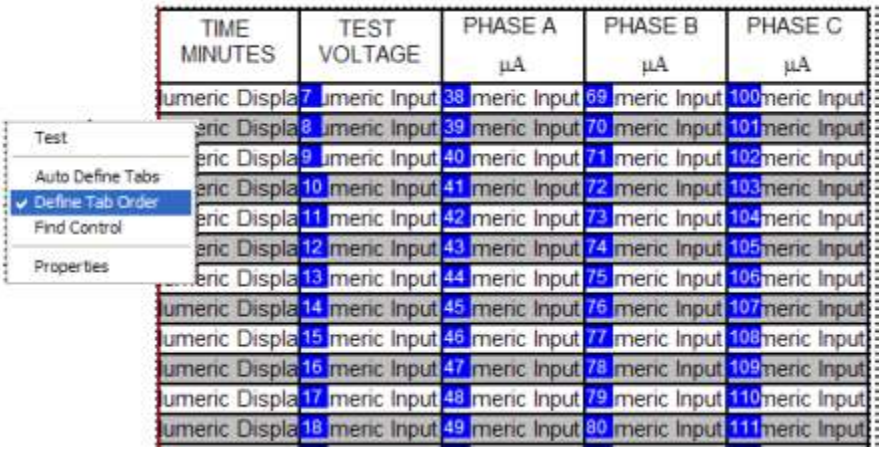
Forms may span multiple pages. Click on the 'Add Page' button to add an additional page to the end of the form. Click on the 'Delete Page' button to delete the active page from the form. The first page of the form may not be deleted. The 'Previous Page' and 'Next Page' buttons change the active page.

10.1.12Test Form

Clicking the 'Test' button toggles the form editor between Design Mode and Test Mode. Test Mode does not allow control properties to be changed but presents the form as it would look for data entry. Data formatting, calculations, and tab order may be verified in Test Mode.

10.1.13Tab Order

By selecting 'Auto Define Tabs' from the right-click menu, PowerDB will automatically assign the tab order of the input controls from left to right, top to bottom. Selecting 'Define Tab Order' from the right-click menu allows the user to set the tab order or modify the tab order defined by the auto define function. To change the tab order, hold down the *Ctrl* key and click on the control preceding the needed change. Next, release the *Ctrl* key and begin clicking the controls in the desired tab order. The system will renumber the remaining controls. Tab order must be defined for forms and sub-forms as well.



10.2. Sub-Forms

A sub-form is a data entry and presentation tool for commonly used sections of forms. To work within the sub-form portion of PowerDB, click on the 'Sub-Form' button on the toolbar.

10.2.1 Sub-Form Tree

The Sub-Form Tree is divided into two folders: Standard Sub-Forms and User Defined Sub-Forms.

10.2.1.1 Standard Sub-Forms

Standard Sub-Forms may be edited but not deleted. The *Default Form Type* is used as the initial form for a new form type. The *Field Service Report* is used as a notepad for general information reporting specific to a job.

10.2.1.2 User-Defined Sub-Forms

The user-defined sub-forms are intended for use for identical data presentation across forms. Clicking 'New' on the toolbar while the sub-form tree is open creates a new sub-form. A sub-form named 'New Sub-Form' will be added to the User Defined sub-form folder. Right click on the sub-form and choose 'Rename' to modify the description. A new user-defined sub-form will appear as a blank 8.5 inch by 11-inch form. Populate the workspace with controls that will be used in other sub-forms or forms.

10.3. Form Files

Form and Sub-Form files are stored as a .pxd file type and may be moved between databases. To move a file from a database, set focus to either the Form Editor or Sub-Form Editor tree as appropriate. Select the file with a single left click. Go to the File menu and select Export > Export and save the .pxd file. To move a file into a database, set focus to either the Form Editor or Sub-form Editor tree as appropriate. Go to the File menu and select Import > Import Form PXD. Browse to the required file. You generally should select Intelligent Import to avoid overwriting areas that are commonly customized such as logos and footers. You will be prompted about the form file and each sub-form

file contained in the import file if a similar file exists in the database. You generally want to Update the existing file, keeping the same name and ID.

10.4. Additional Help

Please refer to the Forms Design FAQ document available at the Help menu.

10.5. Enhanced Text

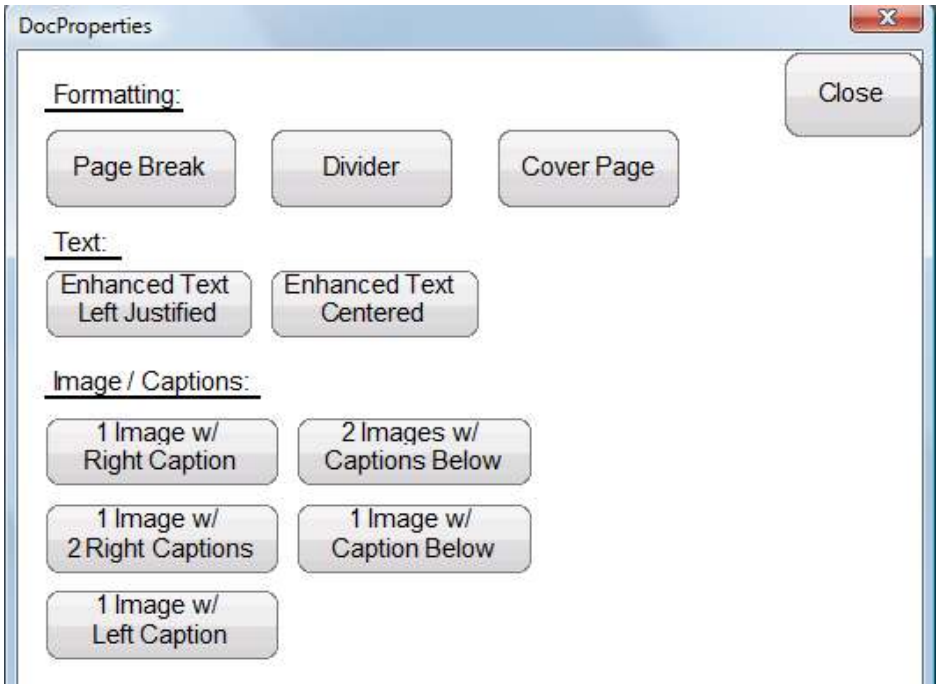
You may add a document-like form to your Job. This might be used for purposes such as a transmittal letter or inspection report. This form can be printed as part of your job results. Remember to save at intervals as you build your document form.

To utilize this feature import the following form into your Form Editor tree >> 11111 – DOCUMENT located in the Miscellaneous / General family folder. Form 11112 is also available and includes a standard form header. This form can be added to any Job via the Add to Job wizard. Once added to a Job, open the form. To start building your form left-click in the following area.

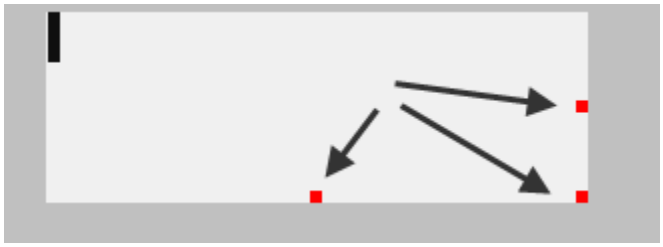
Then click the Add Section Below button.

This will display the DocProperties screen to select what you want to add to the form. Selections include:

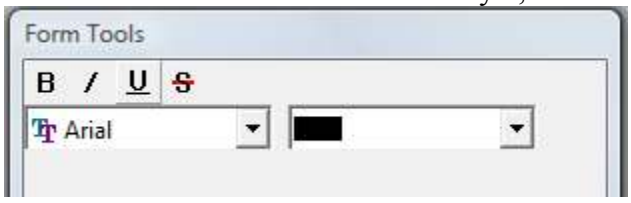
- Page Break
- Divider
- Cover Page (large font, centered text)
- Left Justified Text
- Centered Text
- Various Image/Caption combinations



The selected editable area will appear white on the gray background. Click in the area to add your text or image.
If the item added includes a text area you will see the following.

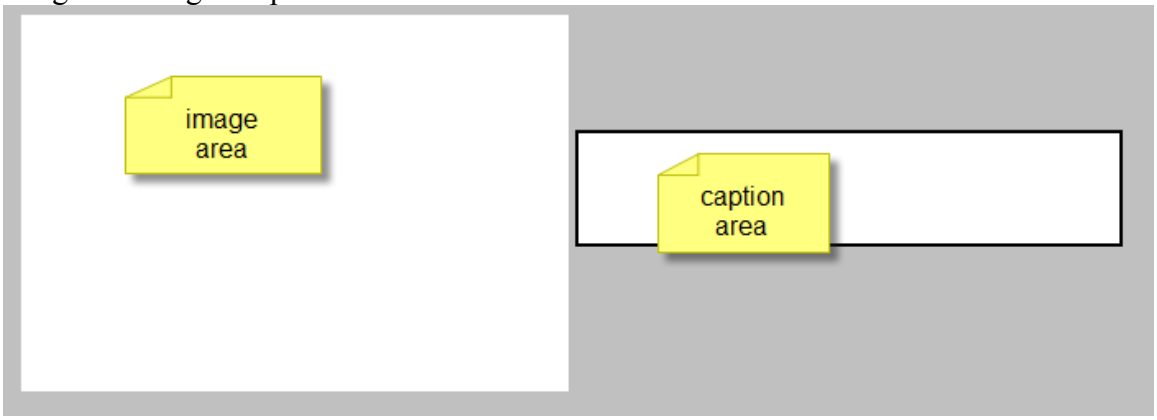


You may resize the text area left/right or up/down by grabbing the red handles with your mouse.
You will also be able to select font style, font color, bold, italic, underline and strike out.



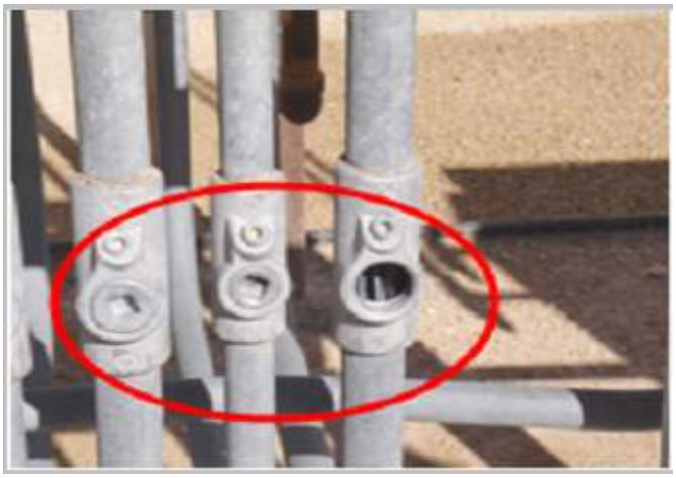
Below is an example of an image/captions option.

Image with Right Caption



To populate an image left-click in the image area and browse to the desired file. To populate a caption click in the caption area and enter the caption text. Resize as necessary.

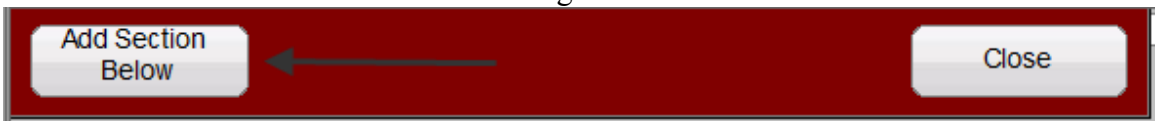
You may add arrows, circles or ellipses on an image. Right-click on the image and select Add Shape. Arrows will be drawn from where you first click, pointing toward the spot you release your mouse button. Right-click again to add additional shapes, to remove last shape or remove all shapes.



To start building the next area of your form left-click in the following area again. You may remove a section by clicking this same tool.

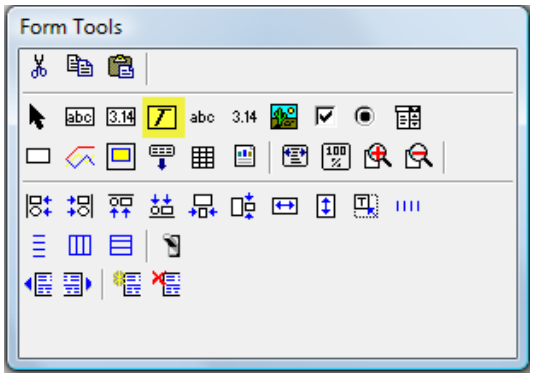
<----------Section Break (This is hidden on print - Left Click to Add Section Below or Remove This Section)---------->

Then click the Add Section Below button again.



10.5.1 Enhanced Text Controls in Form Editor

There is a new control on the forms tool palette to add enhanced text input fields on forms.



If selected the icon will add an enhanced text field on to the form workspace. This is handled much like a text input field with the following additional features.

- The area can be resized and can overlap other fields.
- The text can be formatted as to font style, font color, bold, italic, underline and strike out as you enter data.
- The text area can display simple formatting from other applications (Microsoft Word) such as font size and color. It will not support certain number and bullets characteristics.
- Text input will word wrap within the perimeters as sized.
- Spell checking is not available in these input fields.